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# Feed

## Outlook and Situation Report

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Corn harvest lowest since 1965, p.4

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## Summary

In 1983/84, corn and sorghum use will exceed production by a wide margin, resulting in a large drop in carryover stocks next year. Prices are expected to average well above a year earlier. The payment-in-kind program and this summer's drought reduced the harvest of corn and sorghum to 116.9 million metric tons, less than half 1982's 234.7 million.

Record-high stocks partly offset the impact of the reduced harvest. Stocks of corn, sorghum, barley, and oats amounted to 108.6 million tons on October 1—24 million larger than a year earlier. Thus, the supply of feed grains going into the fall and winter totals 216 million tons—about 32 percent less than last year's 320 million and the lowest since the fall of 1977. The feed grain supply will be augmented by a small amount of imports and by barley and oat harvests next summer.

In several areas, wheat prices were significantly less than those for corn and sorghum, prompting a shift to wheat feeding. As a result, an estimated 270 million bushels of wheat were fed to livestock and poultry during June-September—about 37 percent more than a year earlier. Corn and sorghum prices remain at a premium to wheat, and December futures prices imply more of the same. Consequently, wheat feeding is expected to continue well above a year earlier through the fall and winter.

Use of feed grains for 1983/84 (October-September) will likely total about 209 million tons, about 9 percent less than last year and the lowest level since 1973/74. Exports and the food, seed, and industrial use (FSI) category will probably be up about 4 percent, while feed and residual use will be down 15 percent. This figure for total use would pull ending stocks down to about 35 million tons next October—about a third of this year's.

This year's corn crop, estimated at slightly over 4.1 billion bushels, is less than half the 1982 crop and the smallest since 1965. Record beginning stocks of a little over 3.1 billion and a small amount of imports bring the total supply of corn to nearly 7.3 billion, or 184 million metric tons—about 32 percent less than last year. Corn will account for about 76 percent of the total feed grain supply for 1983/84, compared with 79 to 80 in recent years.

Corn use this year is expected to total about 6.8 billion bushels—down around 10 percent from 1982/83's 7.5 billion. FSI use is expected to be up about 5 percent, exports may be virtually unchanged, and feed and residual use will be down. Total use will draw October carryover stocks down close to 500 million bushels, or 7.6 percent of use. This would be the tightest situation since 1976, when ending stocks were 6.9 percent of use.

The tight stocks are expected to raise corn prices through spring. Also, rising corn prices may pull up prices for sorghum, barley, and oats—particularly since they are currently priced low relative to corn.

Hay production, estimated at 142.7 million tons, was cut by drought this summer, particularly in the Northern Plains and the Corn Belt. A slightly smaller area was harvested, but a drop in yield was the major factor. Carryover stocks of 29 million tons brought the total supply for 1983/84 to about 172 million tons—3 percent less than last year. The number of roughage-consuming animal units is up slightly, and feeding of hay started early in the severe drought areas. Hay prices have been stronger this summer and are expected to continue well above last year for the balance of 1983/84.

The number of grain-consuming animal units (GCAU's) on hand for this year is estimated at 77.7 million, about 1 percent less than last year. However, a reduction in feed consumption likely will occur during the last half of the year. Red meat and poultry production for October-March is forecast to exceed a year earlier by 3.7 percent, but production for April-September is expected to be about 3 percent less. Unattractive livestock/feed price ratios are projected to cause a decline in feed fed per GCAU.

Participation in the 1984 feed grain program will depend largely on farmers' expectations for corn prices next fall. The lower the expected corn price, the greater the participation likely will be. However, the program involves only a 10-percent acreage reduction, so even if a third of the farmers participated, only a small amount of base acreage would be set aside. Consequently, if planting and growing conditions are normal next year, the corn crop could exceed 8 billion bushels.

### Trend In Corn Yields Is Recent Phenomenon

Data on the estimated yield of corn harvested for grain start in 1866. The first 76 years of data, 1866-1941, exhibit no trend. Rather, the yield fluctuated about an average of 26 bushels an acre throughout these years. Even hybrid varieties did not raise the national average yield until the 1940's. The standard deviation for this period was 3.26 bushels. More years fell above the long-term average than below. Because the deviations about the mean sum to zero, adverse weather must have had a greater impact on yield than unusually good weather. The interval about the average yield necessary to include 90 percent of the observations is from +1.23 to -2.39 standard deviations.

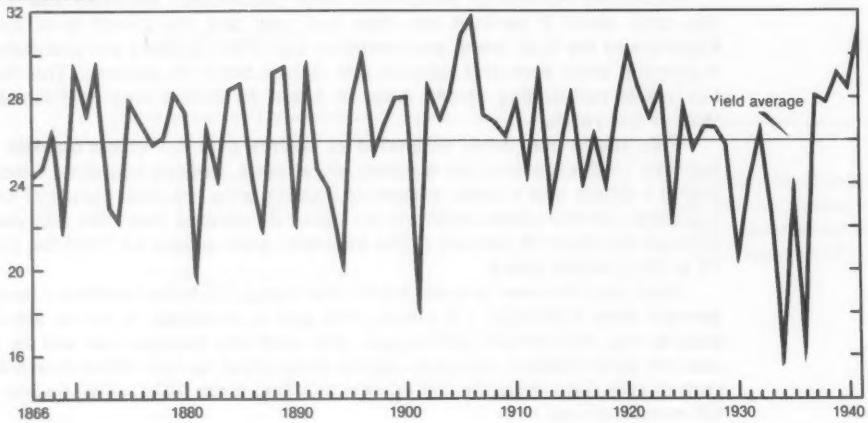
During the 42 years from 1941 to 1982, yield trended upward, and three separate trends can be identified. From 1941 through 1955, the average yield increased about three-quarters of a bushel per acre or about 2 percent a year, measured at the midpoint of the trend. The

standard error of estimate was 3 bushels. From 1955 through 1969, the trend was steeper—2.9 bushels per year—but variability was less, as evidenced by a standard error of 2.5 bushels. The trend flattened out somewhat during 1969-1982, as the increase in yield dropped to 2.2 bushels per year. However, the most striking aspect of this latter period is the increased year-to-year variability. The standard error for this period was 9.2 bushels.

A large number of factors underlie the growth in corn yield during the past 42 years: improved varieties, increased use of fertilizer, larger scale machinery, larger farms and fields, changes in farming techniques, increased seeding rates, and increased farming and management skills. No doubt additional increases in yields will be forthcoming, if only from wider adoption of today's state of the art.

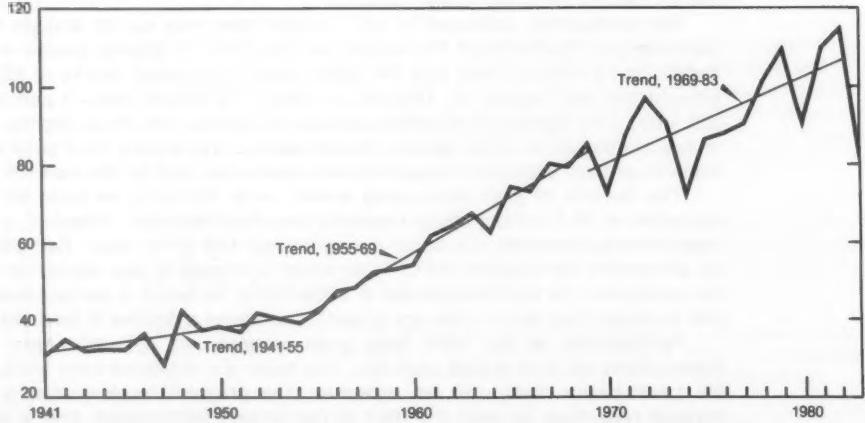
Corn Yield Per Acre, 1866-1941

Bushels/acre



Corn Yield Per Acre, 1941-1983

Bushels/acre



## FEED GRAIN SUPPLY AND UTILIZATION

The current outlook for feed grain prices and ending stocks represents a sharp contrast to the outlook last November. This year, a combination of the payment-in-kind (PIK) program and drought resulted in an estimated corn and sorghum harvest of 116.9 million metric tons, less than half the 234.7 million tons harvested in 1982. Use will exceed production by a considerable amount, dropping ending stocks of corn and sorghum to their lowest since October 1, 1976. As a result, prices of feed grains will average substantially higher this year.

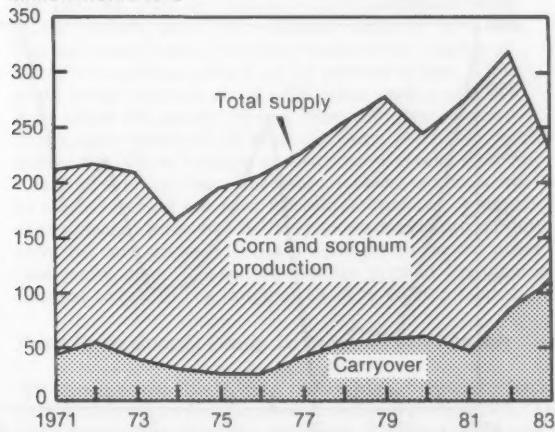
Record stocks on October 1 partly offset the reduced harvest's impact on the feed grain supply for the 1983/84 feeding year (October-September)<sup>1</sup>. Stocks of corn, sorghum, oats, and barley amounted to 108.6 million tons on October 1—24 million larger than a year earlier. Thus, the available supply of feed grains going into the fall and winter totals 216 million tons—about 32 percent under last year's 320 million and the lowest since the fall of 1977.

Additional supplies during the feeding year will come from barley and oat harvests next summer and from a small amount of imports (generally less than a half-million tons). Combined annual production of barley and oats for 1971-1982 averaged 17.7 million tons, with the range from 14.5 to 20.3 million. If yields are normal next year, production of barley and oats will about equal the 18.5 million tons harvested this year. This would bring the total supply of feed grains for the 1983/84 feeding year to about 244 million tons, a fourth under the 326.4 million available for 1982/83.

<sup>1</sup>The data on a feed-year basis will not agree with data in the World Supply and Demand Report, which are aggregated on a crop-year basis—June-May for barley and oats, and October-September for corn and sorghum.

### Fall and Winter Feed Grain Supply

Million metric tons



October 1 stocks plus harvest of corn and sorghum. 1983 forecast.

### Feed Grain Use Expected To Decline in 1983/84

Disappearance of feed grains in 1982/83 reached 230 million tons, 9 percent above the preceding year and only 2 million short of the record use in 1979/80, when the grain-consuming animal and poultry populations were record high. Feed grain exports declined 4.3 million tons in 1982/83, while domestic use rose 22.3 million from a year earlier—over 15 million tons of the increase in the feed and residual use category of corn. It appears from livestock numbers and slaughter weights that the residual component accounts for a large part of this, so actual feed use is not up as much as total use implies.

The disappearance of feed grains has trended upward about 4.9 million tons a year during the past 12 years. This trend is accounted for by the growth in exports and in the food, seed, and industrial use (FSI) category. Even with the record-high feed and residual disappearance this past year, no significant trend was evident in that category during 1971-1982.

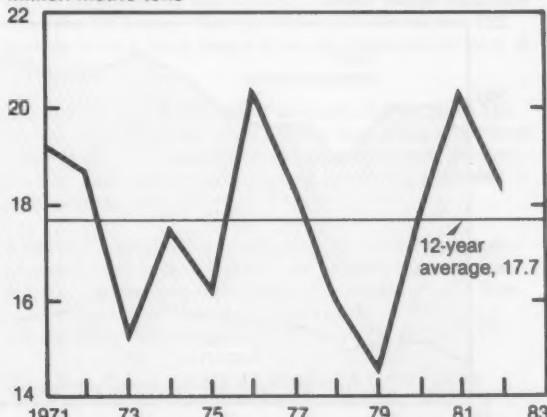
Use in the 1983/84 feed year likely will total about 209 million tons, about 9 percent under disappearance last year and the lowest use since 1977/78. Exports and FSI categories are likely to be up about 4 percent, while feed and residual use will be down about 15 percent. However, just as the residual component probably comprised a large part of the increase in disappearance last year, the likely return to a more normal residual component in 1983/84 would account for much of the expected decline in the feed and residual category. Grain-consuming animal units are expected to be down about 1 percent this year, and because of relatively low livestock/feed price ratios, the feeding rate for some categories of livestock and poultry also will probably decline from last year.

### Wheat Feeding High in 1982/83

A near-record supply of wheat this summer, combined with tight holding of corn and sorghum because of the

### Barley and Oat Production

Million metric tons



Based on October-September feed year.

small harvest in prospect, resulted in the unusual situation of corn and sorghum prices' being at a premium to wheat in many areas. Consequently, wheat displaced corn and sorghum in livestock and poultry feeding to a greater extent than usual this summer. About 270 million bushels of wheat are estimated to have been fed during June-September 1983. This brought the total feed use category of wheat to 290 million bushels for the 1982/83 feeding year—almost double the preceding year and the highest during the past 12 years.

The use of wheat as a feed in the 1983/84 feeding year presents an interesting question. Will wheat be so abundant that it becomes priced at its marginal use as a feed grain? Use during October-May may run as high as 80 million bushels or more—considerably above the norm for this period. However, most of the wheat is generally fed during June-September.

Next summer, new-crop sorghum is expected to be relatively plentiful, and if growing conditions are normal in the major corn-producing regions, corn prices likely will be weakening rapidly, particularly in August and September.

### Corn

#### **Crop Smallest Since 1965**

The corn harvest this year is now estimated at 4.1 billion bushels, less than half of last year's 8.4 billion bushels and the smallest harvest since 1965.

The area harvested for grain this year is estimated at 51.2 million acres. An additional 8.9 million acres was harvested for silage and forage or was abandoned, compared with 8.7 million so disposed of last year.

The average U.S. yield this year is estimated at 80.5 bushels per acre. This yield is 30 percent below 1982's 114.8 bushels and the lowest since the 71.9 average for the drought- and freeze-damaged crop of 1974. However,

on a relative basis, this year represents a greater reduction than 1974. This year's yield was 3 standard errors below the 1969-1982 trend value, whereas the 1974 yield was 2 standard errors below. Moreover, with normal growing conditions this year, the average yield likely would have exceeded trend by several bushels; whenever planted area is reduced significantly by a set-aside program, lower quality land tends to be set aside.

#### **Record Carryin Stocks Support Use**

A record 3.1 billion bushels of corn were on hand on October 1, 1983. This carryin, combined with the crop of 4.1 billion and expected imports of about 1 million, brings total supply to 7.3 billion bushels, or 184 million metric tons. So, although this year's crop is down 51 percent, total supply is down only about 32 percent. Corn will account for about 76 percent of the total supply of feed grains for the 1983/84 feeding year, compared with a 79- to 80-percent share in recent years.

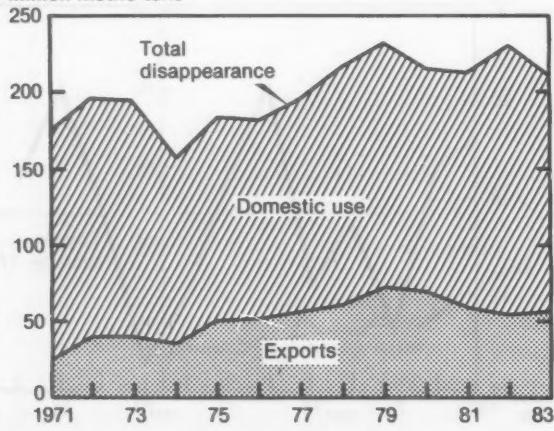
Even though production and supply are both substantially below last year, disappearance for this year is expected to total 6.8 billion bushels—down about 10 percent from last year's 7.5 billion bushels. The steady growth that has characterized the FSI markets during the past 12 years or more is expected to continue during 1983/84. Growth this year may fall short of the 11 percent realized last year, but a gain in excess of 5 percent is expected to push FSI use to at least 950 million bushels.

High prices and a continued strong dollar both tend to discourage exports. However, the long-term agreement with the USSR and decreased production last year in some competing countries likely will result in U.S. exports equal to or slightly higher than last year's total of nearly 1.9 billion bushels.

Livestock and poultry feeding will continue to be the major outlet for corn. Last year, feed and residual use was a record 4.8 billion bushels—15 percent above the preceding year—even though the number of grain-

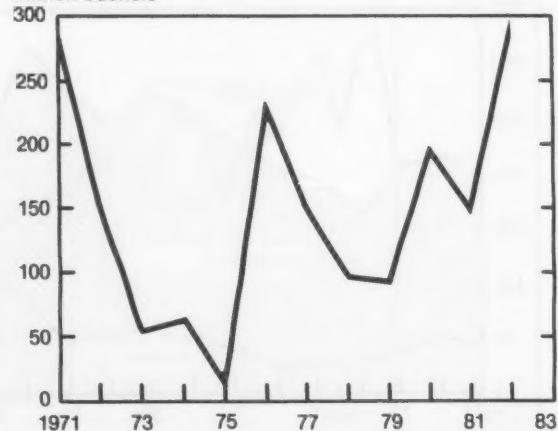
#### **Disappearance of Feed Grains**

Million metric tons



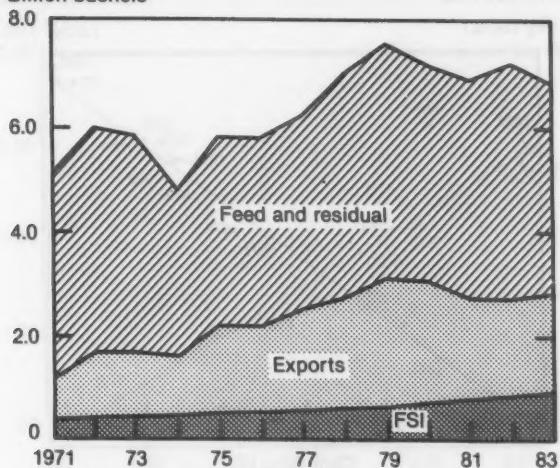
#### **Wheat: Feed and Residual Disappearance**

Million bushels



### Disappearance of Corn by Type of Use

Billion bushels



consuming animal units was only 1.6 percent larger. However, it appears that disappearance last year included a large residual component. The residual component is not likely to be as large this year. The number of grain-consuming animal units is expected to be down about 1 percent, and lower livestock/feed price ratios likely will result in a decline in feeding per unit. Total feed and residual use is forecast at 3.9 billion bushels, 10 percent less than probable feed use last year.

The greatest reduction in feeding likely will occur during the last half of the feeding year. Red meat and poultry production for the first half is forecast at 27.3 billion pounds—3.7 percent larger than a year earlier. During the last half of 1983/84, though, red meat and poultry production likely will be down about 3 percent.

#### Tight Supply and Higher Prices Probable in 1983/84

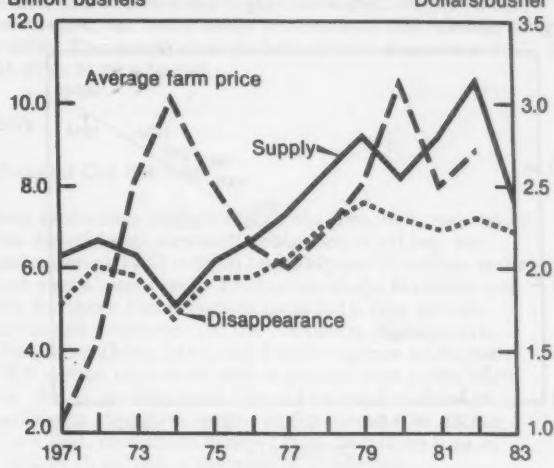
For 1983/84, total use of corn is forecast at almost 6.8 billion bushels, out of an available supply of 7.3 billion. The use would leave carryover stocks next October of about 512 million bushels, or 7.6 percent of use. This could be the tightest since 1976, when ending stocks were about 6.9 percent of use. However, given current prices, approximately \$3.30 at the farm, use likely would exceed 6.8 billion bushels, and carryover stocks next fall would be even tighter. Therefore, a boost in prices will be needed to hold use near 6.8 billion bushels. A significant seasonal price rise is likely as we move into winter. Stronger corn prices will likely raise prices for the other feed grains also. The season average price at the farm is forecast to fall in the range of \$3.40 to \$3.80 a bushel.

#### Feed Grain Supply Likely To Increase in 1984/85

With corn prices likely to be record high during the first half of this crop year, farmers probably will approach the 1984 planting season with optimism. The feed grain program, announced September 29, requires a 10-percent acreage reduction as a condition of eligibility for pro-

### Corn Supply, Disappearance, and Price

Billion bushels



gram benefits. Even if participation turns out to be about 30 percent, the set-aside will be only about 2.5 million acres (see the special article in this issue). The implication of normal planting and growing conditions next spring and summer would be a corn crop in excess of 8.0 billion bushels next fall.

Total use in 1984/85 likely will not exceed 7.2 to 7.4 billion bushels, so under this scenario stocks will start building again. If the planted acreage report and growing conditions next summer confirm such a prospect, prices will likely drop rapidly next August and September.

### Sorghum

#### Supply Down Sharply for 1983/84

The total supply of sorghum for the 1983/84 feeding year is estimated at 881 million bushels, down 23 percent from the 1.1 billion on hand last year. This year's harvest is estimated at 482 million bushels—43 percent less than the 1982 crop. Carryin stocks of 399 million bushels were a third larger than the year-earlier total of 297 million.

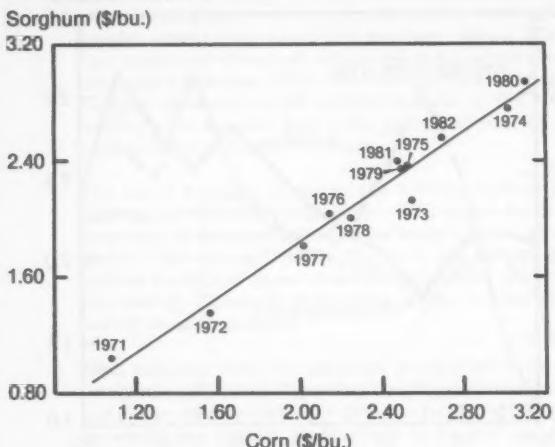
About 220 million bushels of sorghum were still in the farmer-owned reserve (FOR) at the beginning of October. About a third of this represents grain that was pledged for PIK payments; this is coming out of the FOR and will continue through next March.

Reserve IV sorghum was triggered in early August, but seasonal weakness in October, as harvest reached peak activity, pushed the price below the trigger level. However, the price increases expected in the late fall and winter likely will trigger both reserve IV and V.

#### Sorghum Prices Likely To Rise with Corn Prices

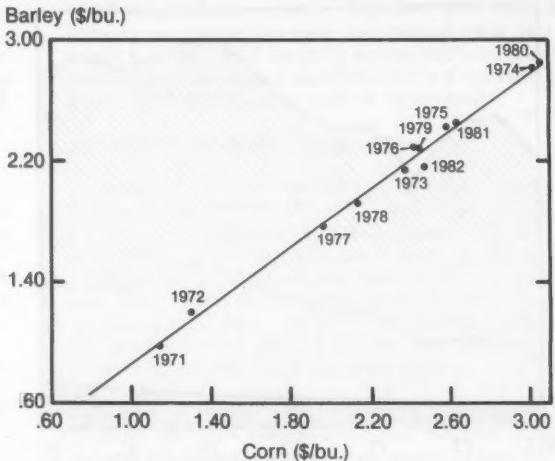
Domestic feed use this year is expected to be down 14 million bushels, to 500 million. Most of this decrease is likely to be offset by a rise in exports, to 225 million

### Relationship Between Farm Prices for Corn and Sorghum, 1971-1982



Based on October-September crop year.

### Relationship Between Farm Prices for Barley and Corn, 1971-82



Based on June-May crop year.

from 215 million. Thus, even though total supply is down 23 percent, use is expected to drop less than 1 percent. The relatively high use will pull carryover stocks down to about 146 million bushels by next October.

If use reaches the 735 million bushels forecast for this year, both reserves IV and V will have to be triggered. The trigger price for reserve V is \$3.10 a bushel. However, more important to the season-average price of sorghum is the average price of corn; the two are highly correlated. Based on a regression analysis for 1971-1982, the season average farm price of sorghum would be \$3.15 a bushel if the price of corn averaged \$3.40 a bushel, at the low end of the forecast range. If the price of corn averaged about \$3.55, the regression equation forecasts a price of almost \$3.30 for sorghum. Therefore, it does seem likely that sorghum prices will strengthen during the winter and early spring, given the probable movement of corn prices. The farm price for sorghum is expected to average \$3.10 to \$3.40 a bushel.

## Barley

### Crop Sets Record

A record 532 million bushels of barley were harvested this year from 9.9 million acres—the largest area of barley harvested since 1973. The average yield was 53.7 bushels an acre—down 6 percent from last year's 57.3, but still the second highest on record.

In addition to the harvest, carryin stocks of 223 million and June-September imports of 3 million combined to produce a record crop-year (June-May) supply of 758 million bushels—11 percent larger than last year. A small quantity of barley will be imported during October-May.

### June-September Use High

Use of barley during June-September totaled 233 million bushels—an increase of 57 million over a year earlier and

a record for this period. Feed and residual use accounted for 151 million bushels. This large feed use reflects the fact that corn averaged \$3.21 a bushel at the farm during June-September, compared with \$2.33 for barley. Thus, barley was priced well under its feeding value relative to corn and well under its historical relationship to corn as well.

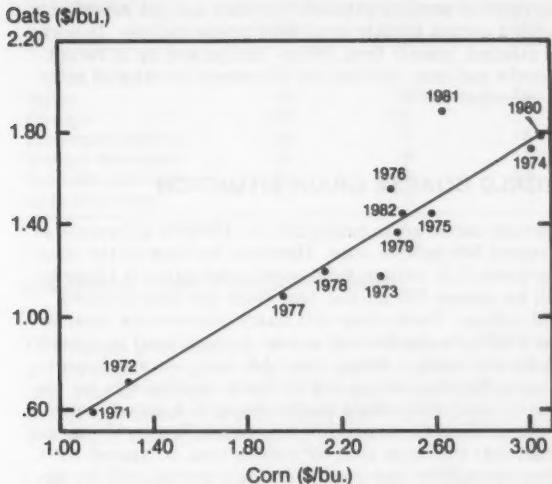
Almost 55 million bushels of barley were used in the brewing and malting industries, an increase of almost 7 percent from the 51 million of a year earlier. The increase in malting use drove the price of malting barley at Minneapolis up 36 cents a bushel from June to October.

Exports amounted to 23.4 million bushels during June-September, down slightly from a year earlier. However, barley production was short in a number of areas of the world, and export prospects are good. Exports for the crop year are expected to reach 85 million bushels—about 81 percent above last year.

Total use is estimated at 600 million for the crop year. This would leave carryover stocks of 165 million next June. Last year, exports of barley dropped off sharply after June-September, but feed use was strong during the last half of the crop year. This year, exports for October-December and January-March are likely to be closer to June-September exports.

If feed use does continue at the June-September rate, feed disappearance for the year will be almost 380 million bushels. However, some price rationing likely will occur during the balance of the year. During June-September, barley was priced low relative to corn. Consequently, barley prices are expected to rise through the winter and spring to bring the annual average closer to the long-term statistical relationship with corn prices. If corn prices rise seasonally as expected, this will add to the amount of increase likely for barley prices. The season average price of barley is expected to fall in the range of \$2.55 to \$2.80.

## Relationship Between Farm Prices for Oats and Corn, 1971-82



### Oats

#### Supply Down Sharply

This year's oat crop is estimated at 473 million bushels, about 23 percent smaller than last year's 617 million. A 14-percent drop in area harvested and an 11-percent fall in yield account for the decline. The decreases were particularly large in Iowa, Minnesota, Nebraska, and South Dakota. North Dakota was the only major producing State to harvest a larger crop this year.

#### Supply Cushioned by Carryover Stocks

As with the other feed grains, the drop in the oat harvest was cushioned by a large carryover stock—229 million bushels. Imports also are adding to supply this year; a record 11.7 million bushels of oats were imported during June-September. Thus, the supply of oats through September was 713 million bushels, about 7 percent less than the 770 million available during a year earlier. Last year, about 3 million bushels were imported during October-May, to bring supply for the crop year to 773 million. This year, imports for October-May likely will not exceed 2 million bushels, bringing supply for the crop year to 715 million.

#### June-September Use Up

Total disappearance of oats for June-September was 211 million bushels, up 12 percent from the 188.5 million used a year earlier. Feed use, the major market for oats, was 193 million bushels, up 14 percent. Food processing used 15.8 million, down slightly from the 16.2 million used during June-September last year. Only about 800,000 bushels were exported.

Total use for 1983/84 is forecast at 540 million bushels. Disappearance for June-September leaves 329 million bushels to be used during October-May—26 million less

than a year earlier. Oats were priced low relative to corn during June-September, stimulating oat feeding. In prices, oats and corn are highly correlated. Based on the correlation, oat prices likely will increase this fall and winter. The season average farm price is expected to be \$1.65 to \$1.80 a bushel.

### Hay

#### Drought Cut the Crop

Hay production, particularly in the Corn Belt, was cut by the drought this summer. Production of all hay was estimated at 142.7 million tons—almost 10 million under last year's record crop. Production in the Mountain and the Southern Plains regions exceeded a year earlier. Combined production for the Northeast, Appalachian, Southeast, Delta, Lake, and Pacific regions amounted to 65.9 million tons, down only 4 percent from a year earlier. But in the Northern Plains, the crop fell from 28 million to 19 million, a drop of 7 percent. Also, in the Corn Belt, production dropped from 25 million tons in 1982 to 19 million, a decrease of 23 percent.

The area harvested was down from 60.7 million acres last year to 60.4 million this year. The major factor in the lower production was a decrease in national average yield, from a record 2.51 tons per acre last year to 2.36 this year. However, in the Corn Belt the yield dropped from 2.76 tons last year to 2.22 this year.

A carryover stock of 29 million tons brings the total hay supply to 171.7 million for the 1983/84 crop year (May-April). This year's supply is 5.9 million tons smaller than last year's, but it is still slightly above the 1978-1982 average of 171.3 million.

The number of roughage-consuming animal units (RCAU's) for 1983/84 (October-September) is estimated at 90.6 million—up from 90.4 million last year. The supply per unit is about 1.89 tons, compared with 1.96 last year. For 1978-1982, the average disappearance per RCAU was 1.6 tons per year. If the rate of feeding does not exceed this average, carryover stocks next May will be about 26.5 million tons—slightly under the 1978-1982 average of 27.6 million tons.

Hay prices have been strong this summer. The farm price of all hay averaged \$76 a ton during May-October this year, compared with \$68.76 a year earlier. Hay prices likely will hold above year-earlier levels for the rest of the crop year.

### FEED DEMAND

#### Grain-Consuming Animal Units May Decline Slightly for 1983/84

The number of grain-consuming animal units (GCAU's) for the 1983/84 feed year is estimated at 77.7 million, about 1 percent less than last year. All major categories of livestock and poultry, except hogs, are down from a year earlier. The increases in the 1983 spring and fall pig crops will more than offset the decline expected in next spring's pig crop.

Feed used during the first half of 1983/84 may exceed the amount probably fed a year earlier. Total red meat and poultry production for October-March is forecast to exceed a year earlier by 3.7 percent. However, this increase will in part reflect some liquidation of breeding stock. Red meat and poultry production for April-September 1984 is expected to be about 3 percent less than a year earlier. Consequently, the decline in feeding will occur during the second half of the year.

Decreased feeding per animal unit likely will also cut feed use this year. Livestock/feed price ratios are less favorable than in 1982/83, and this will discourage feeding to heavier weights. The average live weight of barrows and gilts at the seven markets has been running under a year earlier since last June. This past year, feed grain disappearance per GCAU was 1.8 metric tons, compared with an average of 1.44 tons for 1977-1981. However, the large residual component in the feed and residual category of corn use is an important factor in the record disappearance for 1982/83. This year, feed disappearance per animal unit is expected to be nearer the long-term average.

## FOOD AND INDUSTRIAL DEMAND

### *FSI Demand Expected To Slow In 1983/84*

Food, seed, and industrial use of corn for the 1982/83 marketing year was about 902 million bushels, 11 percent above 1981/82. About half of FSI disappearance was accounted for by production of high fructose corn syrup (HFCS) and alcohol. Both showed significant growth last season. HFCS output rose mainly because of major decisions by PepsiCo, Incorporated, and the Coca-Cola Company to substitute more HFCS for sugar in their products. Alcohol production made another leap forward as fuel ethanol production remained profitable and more plants came on line.

Despite rising corn prices, HFCS production is expected to show substantial gains in 1983/84. This is because of continued strong demand by soft drink companies, which will still find HFCS cheaper to use than sugar. Fuel ethanol output, however, is likely to increase at a slower

#### **Food, seed, and industrial use of corn<sup>1</sup>**

Products	1980/81	1981/82	1982/83*	1983/84**
Million bushels				
HFCS	165	195	225	255
Alcohol <sup>2</sup>	75	120	180	195
Glucose and dextrose	185	190	191	190
Dry milled for food & beer <sup>3</sup>	160	162	164	165
Starch	130	125	127	125
Seed	20	19	15	20
Total	735	811	902	950

<sup>1</sup>Year beginning October 1. <sup>2</sup>Fuel, industrial, and beverage alcohol.

<sup>3</sup>Cornmeal, grits, flour, cereal, snacks, and specialty foods.

\*Revised. \*\*Forecast.

rate than in the past 2 years. Some small processors have already shut down operations until corn prices come back down. Large processors, especially wet-millers, will continue to produce ethanol, but they are not expected to expand output greatly until corn prices decline. Imported ethanol, mainly from Brazil, has picked up in recent months and may account for 12 percent of ethanol sales in calendar 1983.

## WORLD COARSE GRAIN SITUATION

Foreign coarse grain production in 1983/84 is forecast at a record 546 million tons. However, because of the sharply lower U.S. output, total world production is likely to fall by almost 100 million tons from last year's record 780 million. Production will likely increase the most in the USSR, to the Soviets' second highest level on record. China will enjoy a larger crop this year. In many countries in Europe, output will be down, particularly for the barley crop. Production by the major U.S. export competitors (Canada, Australia, Argentina, South Africa, and Thailand) will total over 60 million tons, compared with about 56 million last year. Canada's harvest will be significantly smaller than last year. However, considerable upward potential exists for some of the Southern Hemisphere crops, which will be harvested next spring. Australia and South Africa will likely double their drought-reduced 1982/83 totals. Outturns in Argentina and Thailand are not expected to show any significant changes.

### *Consumption Reaches Record Level; Trade Picture Mixed*

Because of the record foreign outturn, foreign consumption of feed grains in 1983/84 is anticipated also to reach a record, exceeding 600 million tons for the first time. This represents an increase of about 20 million from the previous year. Total consumption of feed grains will increase in the centrally planned economies because of forecast larger crops, record Soviet livestock inventories, and a policy of improving livestock feed rations. Feed grain consumption in foreign developed countries is forecast at only 152 million tons, down 4 million from last season and down 11 million and 17 million from 1981/82 and 1980/81, respectively.

In spite of production shortfalls, imports by foreign developed nations are forecast to decline to just over 46 million tons, compared to an annual average of 51 million in the last 4 years. Part of the reason for the forecast decrease is a shift in the European Community (EC) towards increased feed use of wheat. Soybean meal prices have been rising rapidly in the EC, and this could prompt an adjustment in the feed mix. Imports by foreign developed nations from the United States are forecast to rise slightly from last year's low of under 28 million tons to close to 30 million. Put into perspective, though, these 1983/84 imports are the second lowest since 1977/78.

Coarse grain production is expected to rebound substantially in South Africa and Australia in 1983/84, facilitating an increase in their exports. Current estimates place major U.S. coarse-grain competitors' exports at over 24 million tons, compared with an average of almost 27 million in the last 4 years.

**Wheat and coarse grain feed use by region**

Region	Wheat				Coarse grains			
	1960	1970	1980	1983	1960	1970	1980	1983
<i>Million metric tons</i>								
World	26	72	85	84	255	341	434	450
Foreign	26	67	84	76	146	214	311	324
Developed nations	12	23	19	32	178	228	247	243
Foreign developed	12	18	18	24	69	101	123	117
Centrally planned	14	49	64	48	59	85	123	134
Less developed	1	1	2	3	18	28	65	73

**U.S.-Soviet Trade Situation Improves**

U.S. coarse grain exports to the Soviet Union in 1983/84 are forecast to improve from the previous year. For the first year of the new U.S.-USSR Long-Term Agreement (LTA), corn sales will probably slightly exceed the minimum level specified in the agreement—4 million

tons a year. The old agreement, which expired on September 30, 1983, required Soviet purchases of about 3 million tons of U.S. corn annually. Total required Soviet purchases of U.S. grain are now set at 9 million tons annually. The USSR has the option to offset 1 million tons of the required purchases of grain by purchasing half a million tons of U.S. soybeans or soybean meal. They have already purchased over 400,000 tons of beans.

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# Evaluating Participation in the 1984 Corn Program

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**Abstract:** This article compares expected net returns from participation in the 1984 corn program with returns from nonparticipation under various price scenarios. A producer's expectations of corn prices and yields are the most crucial factors. For example, if farmers expect corn prices at harvest-time to fall between \$2.60 and \$2.80 per bushel, the rate of participation in the 1984 program is likely to be between 28 and 34 percent. Compliance could be even less than 28 percent if corn prices anticipated by farmers turn out to be higher than \$2.80.

**Keywords:** Corn program, expected net returns, net-returns-equalizing price, program compliance.

This article focuses on factors important to farmers in deciding whether to participate in the 1984 corn program and, by example, compares expected net returns from participation with returns from nonparticipation under various price scenarios. Implications for the rate of participation in the 1984 corn program are also discussed.

## Features of the 1984 Program

To participate in the 1984 program, a producer must agree to limit corn and sorghum acreage planted for harvest to not more than 90 percent of the farm's corn-sorghum base and devote 11.11 percent of the 1984 planted acreage to conservation uses. In return, the producer becomes eligible for nonrecourse loans, deficiency payments, and the farmer-owned reserve (FOR)<sup>1</sup>. The new program discontinues PIK and the 10-percent paid land diversion of 1983.

The national average loan rate has been set at \$2.55 per bushel. Producers may repay the loan plus accrued interest at any time prior to the final maturity date. When the loan matures, the producer may either turn the corn over to the Commodity Credit Corporation (CCC) in payment of the loan and interest, repay the loan, or enter the corn in the FOR<sup>2</sup>. The interest rate on 1984 corn loans will be the interest charged the CCC by the U.S. Treasury (about 10.4 percent in October 1983) and

will be adjusted monthly. As in 1983, the reserve loan rate is the same as the rate for the regular loan.

In addition to being eligible for price support, participants in the 1984 corn program will be eligible for deficiency payments if the average farm price during the first 5 months of the 1984/85 season is below the target price of \$3.03 per bushel<sup>3</sup>. But, the deficiency payment cannot exceed 48 cents per bushel, the difference between the target price and the CCC loan rate. Unlike the 1983 program, the 1984 program does not allow for advance deficiency payments or for diversion payments.

## Factors That Will Affect Farmers' Decisions

The potential benefits from participation rest mainly on the outlook for grain prices. Because grain supplies are much tighter than a year ago, the chance of wide swings in market prices is greatly enhanced, as is the uncertainty of the price outlook.

A comparison of expected net returns from participation with returns from nonparticipation requires: (1) information about established yield and expected yield in 1984; (2) expected selling prices; (3) an estimate of the variable costs of producing, drying, and storing corn, and of establishing a cover crop if conserving use acres are to be maintained; and (4) assumptions regarding storage

<sup>1</sup>The 1984 corn-sorghum base will be the average of the acreage planted or considered planted to corn or sorghum in 1982 and 1983.

<sup>2</sup>USDA intends to review the size of the reserve before regular 1984-crop CCC loans reach maturity. At that time, a ceiling could be placed on the size of the feed grain reserve, limiting entry of the 1984 crop.

<sup>3</sup>At this writing, Congress has not passed an Administration-sponsored legislative proposal to freeze the target price at the 1983 level, i.e., \$2.86 per bushel for corn. The maximum deficiency payment rate would be 31 cents per bushel for corn under the proposal.

capacity, planted acreage, interest rates, and effects of acreage removal on corn yields. Estimates of variable costs at two yield levels are shown in table A. The 110-bushel yield is the assumed expected yield for the non-participant, while the 114-bushel yield is assumed for a participant.

Table B shows an example farm's expected net returns (income above cash expenses) from participation and nonparticipation under the following conditions:

- The farm's corn base is 100 acres, with an established yield of 105 bushels an acre.
- The participant diverts 10 acres to conservation uses and plants 90 acres to corn, the maximum permitted.
- Corn is sold at \$2.65 in October 1984 and \$3.00 in July 1985.
- The farm has 10,000 bushels of storage capacity.
- Production in excess of farm storage capacity is sold at harvesttime (October cash bid).
- Proceeds from harvest sales and CCC loans are deposited at a 10-percent annual interest rate for 9 months.
- Crop expenses incur an interest charge for 6 months at a 10-percent annual rate.
- Interest charges on CCC loans are based on 9 months' maturity (October 30-July 31) at a 10-percent annual rate.
- The participant forfeits corn to CCC at maturity if market prices are below the loan rate plus incurred interest. If July prices are above the loan rate plus incurred interest (i.e., \$2.74 per bushel), loans are repaid with interest, and grain is sold for the July cash price.
- Total production is dried regardless of disposition.
- The average farm price during the first 5 months of the 1984/85 season is \$2.70 (5 cents above the October price), resulting in a deficiency payment of 33 cents a bushel.
- Average yield for remaining acres on the farm will increase about 3.2 percent for every 10 percent of the acreage base that is idled.
- Variable costs for establishing cover crops are about \$25 per acre.

Clearly, for this example, expected net returns from participation are \$1,774 higher than from nonparticipation on 100 acres of base<sup>4</sup>.

<sup>4</sup>However, if Congress passes the proposed legislation to freeze the corn target price at \$2.86 (the 1983 level), expected net returns from participation will be only \$167 higher than returns under nonparticipation. Deficiency payments would be reduced more than half, from \$3,119 to \$1,512.

Table A.—Variable costs per acre for producing U.S. corn in 1984

Expense item	Assumed cost per acre	
	110 bushel per-acre yield	114 bushel per-acre yield
<b>Dollars</b>		
Fertilizer	48.6	50.1
Seed	18.0	18.6
Lime	1.5	1.6
Chemicals	17.9	18.5
Custom operations	6.2	6.3
Fuel and lubrication	20.6	21.2
Repairs	13.4	13.8
Purchased irrigation water	0.1	0.1
Drying and storage	8.5	8.8
Total	134.8	139.0

Table B.—Expected net returns for a corn producer participating and not participating in the 1984 corn program, with a 100-acre base

	Participation	Nonparticipation
<b>Program information</b>		
Established yield (bu./a.)	105	—
Expected yield (bu./a.)	114	110
Acreage planted	90	100
Established program production (bu.)	9,450	—
Expected production (bu.)	10,260	11,000
<b>Expected prices (\$/bu.)<sup>1</sup></b>		
Price at harvest (Oct.)	2.65	2.65
Price at loan maturity (July)	3.00	3.00
<b>Expected income (dollars)</b>		
Grain returns		
Harvest sales	689	2,650
Loan proceeds	25,500	0
July sales less CCC loans	4,500	30,000
Subtotal	30,689	32,650
<b>Payments and interest income</b>		
Deficiency payments	3,119	0
Interest on October sales <sup>2</sup>	52	199
Interest on loan proceeds <sup>2</sup>	1,912	0
Subtotal	5,083	199
Gross income at loan maturity	35,772	32,849
<b>Expected expenses</b>		
Crop expenses		
Corn production	12,510	13,487
Storage (repairs and electricity)	500	500
Cover crop	250	0
Total crop expense	13,260	13,987
<b>Other cash expenses</b>		
Interest on crop expense <sup>3</sup>	663	699
Interest paid on CCC loans <sup>2</sup>	1,912	0
Total cash expenses	15,835	14,686
Income above cash expenses	19,937	18,163
Net gain from participation	1,774	

<sup>1</sup>Expected corn prices assumed in this illustrative example are \$2.65 in October 1984 and \$3.00 in July 1985. <sup>2</sup>Interest computed for 9 months at a 10-percent annual rate. <sup>3</sup>Interest computed for 6 months at a 10-percent annual rate.

### **Net Returns Under Various Price Scenarios**

The outcome of the above comparison is highly dependent on the corn price assumption. If corn prices were lower than assumed, net gain from participation would be higher than what is shown in table B. Conversely, if corn prices were higher, the net gain would be less than indicated.

Table C compares expected net returns for participants and nonparticipants for a range of corn prices. In the example, given the loan rate and expected yield, a participant could expect net returns of no less than about \$20,000 for a 100-acre base. By contrast, returns for nonparticipants decline considerably as prices fall. Clearly, the loan rate, as a floor price, offers program participants down-side price protection. Conversely, the incentive to participate decreases as prices increase.

Based on table C, a net-returns-equalizing price (NREP)—the price at which the expected net returns from not participating will equal the net returns from participating—can be determined. The net returns from participation and nonparticipation would be the same between weighted average price of \$3.12 and \$3.22. By interpolation, the NREP is found to be \$3.15<sup>5</sup>. With the weighting factors for October and July sales being .091 and .909, respectively, the NREP implies that a price of \$2.83 in October 1984 and \$3.18 in July 1985 would equate the net returns from participation with the returns from nonparticipation.

### **Implications for Participation**

What does the above analysis mean for program participation among corn farmers? Can the net returns analysis shed light on the rate of program compliance in the 1984 corn program?

In an attempt to answer these questions, we first reviewed the 1978, 1979, and 1982 programs to determine whether a relationship between rate of program

<sup>5</sup>The formula for finding the NREP was presented by the authors in "Weighing Participation in the 1983 Corn Program," *Feed Outlook and Situation*, March 1983.

participation and the ratio of expected net returns from participation to returns from nonparticipation can be established. These years were chosen because (1) the 1983 program was complicated by PIK, (2) the 1980 and 1981 programs did not require set aside, (3) net returns analysis of the 1979 and 1982 programs was readily available, and (4) the 1984 program resembles those in 1978, 1979, and 1982.

As shown in table D and figure A, an increase in the expected advantages of participation (i.e., ratio of expected net returns from participation to those from nonparticipation) tends to result in a more-than-proportional increase in program compliance when the ratio of net returns does not clearly favor participation<sup>6</sup>. By contrast, when the ratio of net returns clearly favors participation, an increase in the expected advantages of participation tends to result in a less-than-proportional increase in program compliance. For example, a 5-percent increase in the ratio, from .95 to 1.0, leads to a 7-percent increase in program compliance, from 29 to 36 percent. The increase in program compliance drops to only 4 percent (from 36 to 40 percent) when the ratio increases from 1.0 to 1.05.

Before we try to draw implications for farmers' participation in the 1984 program, we should point out that a number of attractive features available in the earlier years' programs are no longer offered for 1984. For the 1978 and 1979 programs, the bulk of incentives for participation appeared to come from voluntary diversion payments, which were guaranteed. Deficiency payments, given the expected corn prices and the target prices, seemed to play a very small role in farmers' decisions. For example, a 100-acre-base farm could expect to receive diversion payments near \$1,500 in the 1978 program. But it could expect virtually no deficiency payments, since the \$2.20 corn price anticipated by farmers at the signup time exceeded the \$2.10 per bushel target price. Similarly, the 1978 and 1979 programs offered disaster payments to participants; disaster payments will

<sup>6</sup>The rate of program compliance is based on acreage base for 1982 and planted acreage for 1978 and 1979. The slight difference in the procedure of computing program compliance, however, does not alter the basic relationship as shown in figure A. If the rate of program compliance had been based on acreage base for all the 3 years, the rate of program compliance would have been only 1 percentage point lower for 1978, and the same for 1979 and 1982.

**Table C.—Expected net returns for participants and nonparticipants in the 1984 corn program at various price scenarios, with a 100-acre base**

Expected corn price October 1984	July 1985	Average price expected by nonparticipants <sup>1</sup>	Expected net returns		Net gain from participation
			Nonparticipants	Participants	
<i>Dollars</i>					
2.50	2.85	2.82	16,501	19,812	3,311
2.60	2.95	2.92	17,609	19,895	2,286
2.65	3.00	2.97	18,163	19,937	1,774
2.70	3.05	3.02	18,717	20,104	1,387
2.80	3.15	3.12	19,824	20,142	318
2.80	3.25	3.22	20,931	20,143	-788

<sup>1</sup>Average price expected by nonparticipants is computed by averaging the October and July prices with the weighting factors of .091 and .909, respectively.

**Table D.—Relationships between ratio of expected net returns from participation to returns from nonparticipation and rate of participation, with a 100-acre base**

Year	Loan rate	Assumed expected corn price per bushel at harvesttime <sup>1</sup>	Expected net returns <sup>2</sup>			Rate of program compliance <sup>3</sup>
			P	NP	P/NP	
<i>Dollars</i>						
1978	2.00	2.20	10,638	9,940	1.07	41
1979	2.10	2.30	10,623	11,500	.92	21
1982	2.55	2.65	9,820	10,295	.95	29
1984	2.55	2.60	19,895	17,609	1.13	34
1984	2.55	2.70	20,104	18,717	1.07	32
1984	2.55	2.80	20,142	19,824	1.02	28
1984	2.55	2.90	20,143	20,931	.96	19

Sources: (1) Agricultural Stabilization and Conservation Service, USDA; (2) Keith Collins and George Rockwell, "Feed Grains," *Farmer's Newsletter*, February 1982; and (3) estimates made by the authors for the 1978 program.

<sup>1</sup>Derived from December futures prices at signup times by allowing for a 30-cent basis, the difference between December futures prices and cash prices at harvesttime. <sup>2</sup>F refers to participation, NP nonparticipation, and P/NP the ratio of expected net returns from participation to returns from nonparticipation. Net returns include deficiency and diversion payments for 1978 and 1979, but exclude the higher reserve loan rate in 1982. <sup>3</sup>Percentages of program compliance for 1984 are projected under various corn price scenarios.

not be available for 1984. Program compliance for 1978 and 1979 would have been considerably lower if diversion and disaster payments had been removed. Finally, in 1982 the rate of compliance would have been considerably lower than 29 percent if the reserve loan rate had not been 35 cents higher than the regular loan rate, and if the immediate entry of the corn crop into the FOR had not been allowed.

All of these incentives, present in earlier programs and absent in 1984, must be taken into account in projecting 1984 participation rates from the earlier relationship between compliance and expected advantages of participation. Lacking more accurate estimates, we hypothesize that absence of the incentives may reduce 1984 compliance at least 10 percentage points (for example, from 29-percent compliance in 1982 to as low as 19). Figure A establishes a new parallel relationship (plotted with a broken line) that allows for the compliance reduction of 10 percentage points or more from the old relationship (plotted with a solid line).

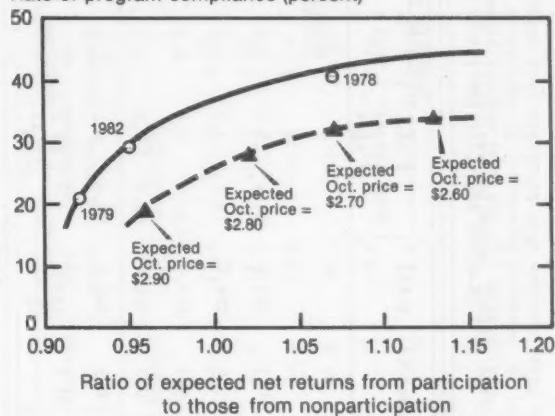
The distance between the two lines represents the effects of the differences in program features between 1984 and earlier years. For example, even though the ratio of net returns under the \$2.70 expected October price scenario in the 1984 program turns out to be 1.07, exactly the same as in 1978, the rate of program compliance in 1984 is likely to be around 32 percent instead of 41. The reasons are that expected deficiency payments in 1984 represent less incentive than the same amount of (guaranteed) diversion payments in 1978, and that in the 1984 program disaster payments are no longer available, whereas in 1978 they amounted to nearly 60 percent of diversion payments—not an insignificant factor.

If farmers expect corn prices at harvesttime to fall between \$2.60 and \$2.80 per bushel, the rate of participa-

Figure A

#### Relationship Between Compliance and Expected Advantages of Participation

Rate of program compliance (percent)



○ Reported program compliance.  
▲ Adjusted/projected program compliance.

tion in the 1984 program is likely to be between 28 and 34 percent. The rate of program compliance could be even less than 28 percent if corn prices anticipated by farmers at signup time (January 16–February 24, 1984) turn out to be higher than \$2.80. For example, if producers expect corn price at harvesttime to be \$2.90 per bushel, program compliance could turn out to be as low as 19 percent.

Table I.--Feed grains: marketing year supply, disappearance, area, and prices, 1978-83 1/

Year 2/	Supply			Disappearance			Ending stocks		
	Begin- ning stocks	Produc- tion	Imports	Total	Domestic use		Total	Govt. owned	Total
				A/c. Food bever- ages	Feed seed and residual	Total	disap- pearance	owned	
Million metric tons									
1978/79	41.4	221.5	0.3	263.2	14.4	5.1	1.4	135.9	156.8
1979/80	46.2	238.2	0.3	284.7	15.7	5.2	1.4	138.7	161.0
1980/81	52.4	198.0	0.3	250.7	17.1	5.4	1.3	123.0	146.8
1981/82	34.6	248.5	0.3	283.4	18.9	5.5	1.4	127.9	153.7
1982/83 4/	71.1	255.0	0.3	326.4	20.5	6.1	1.4	146.3	174.3
1983/84*	98.1	135.4 (+ 4)	0.3 (+ 4)	233.8 (+ 4)	—	—	—	29.3 (+ 1)	126.5 (+ 6)
Area									
National program	Set-aside and diverted			Planted	Harvested for grain		Yield per hectare	Index	Government support program
							Received by farmers 5/		Total payments to participants
Metric tons									
1978/79	39.4	3.4		50.3	42.7		5.19	113	6/ 1,023
1979/80	44.3	1.9		48.1	41.5		5.74	125	6/ 247
1980/81	42.7	—		49.1	41.1		4.82	154	7/ 412
1981/82	42.5	—		50.0	43.3		5.74	123	8/ 423
1982/83 4/	—	1.3		49.3	43.3		5.89	136	8/ 416
1983/84	—	15.7		41.5	32.5		4.17		6/ 1,080

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year for corn and sorghum begins October 1; for oats and barley June 1. 3/ Includes total Government loans (original and reseal). 4/ Preliminary. 5/ Excludes support payments. 6/ Deficiency and diversion payments. 7/ Disaster payments. 8/ Deficiency and disaster payments. \*The probability is 2 out of 3 that the final outcome will be within this range.

Table 2.--Cont.: marketing year supply and disappearance, area, and prices, 1978-83

Year beginning October 1	Supply			Disappearance			Total	Exports ; disappearance	Gove- rnment ; disaster payments	Total	Ending stocks Sept. 30	
	Begin- ning stocks	Produc- tion	Imports	Total	Food ; Alc. 1/ bever- ages	Seed ; Feed 2/ residual						
<u>Million bushels</u>												
1978/79	1,111.4	7,267.9	1.2	8,380.5	531.2	70.0	19.5	4,322.8	4,943.5	2,133.1	7,076.6	99.7
1979/80	1,303.9	7,938.8	1.1	9,243.8	582.8	72.3	20.0	4,518.6	5,193.7	2,432.6	7,626.3	256.3
1980/81	1,617.5	6,644.8	1.2	8,263.5	641.8	73.3	20.2	4,139.0	4,874.3	2,355.2	7,229.5	237.8
1981/82	1,034.0	8,201.6	1.2	9,236.8	709.4	82.7	19.4	4,172.5	4,984.0	1,966.9	6,950.9	302.4
1982/83 4/	2,285.9	8,397.3	0.9	10,684.1	774.3	113.3	14.5	4,772.0	5,674.1	1,670.0	7,544.1	1,150.0
1983/84*	3,140.0	4,121.0	1.0	7,262.0	---	950.0	---	3,925.0	4,875.0	1,875.0	6,750.0	512.0
	(+ 105)	(+ 105)		(+ 105)	(+ 20)	(+ 20)		(+ 200)	(+ 200)	(+ 100)	(+ 250)	(+ 200)
<u>Avg. price per bushel</u>												
<u>Million acres</u>												
<u>Dollars per bushel</u>												
1978/79	76.2	6.1	81.7	71.9	101.0	2.25	2.51	2.28	2.81	2.00	2.10	6/ 683
1979/80	85.7	2.9	81.4	72.4	109.7	2.52	2.73	2.49	3.02	2.10	2.20	7/ 126
1980/81	84.1	---	84.0	73.0	91.0	3.11	3.35	3.13	3.54	2.25	2.35	8/ 280
1981/82	80.5	---	86.2	74.7	109.8	2.50	2.61	2.46	2.83	2.40	2.40	8/ 92
1982/83 4/	---	2.1	81.9	73.2	114.8	2.70	3.00	2.82	3.16	2.55	2.70	9/ 290
1983/84	---	31.3	60.1	51.2	80.5	3.40-3.80				2.65	2.86	10/ 850

1/ Includes industrial products. 2/ Malt beverage and distilled liquor products converted to a corn basis. 3/ Includes quantity under loan and farmer-owned reserve. 4/ Preliminary. 5/ Excludes support payments. 6/ Deficiency disaster, and diversion payments. 7/ Disaster and diversion payments. 8/ Disaster payments. 9/ Deficiency and disaster payments. \*The probability is 2 out of 3 that the final outcome will be within this range.

Table 3.—Sorghum: marketing year supply and disappearance, area, and prices, 1978-83.

Year beginning October 1	Supply		Disappearance						Ending stocks Sept. 30								
	Begin- ing stocks	Produc- tion	Imports	Total	Food	Alc.	Domestic use	Feed	bever- ages	Seed	and	residual	Exports	disap- pearance	Govt. owned	privately owned	Total
<u>Million bushels</u>																	
1978/79	190.5	731.3	---	921.8	6.0	4.1	1.6	543.8	555.7	206.6	762.3	43.6	115.9	159.5			
1979/80	159.5	808.9	---	968.4	6.0	4.6	2.0	484.4	497.0	324.9	821.9	43.9	102.6	146.5			
1980/81	146.5	579.2	---	725.7	5.0	4.3	2.0	301.2	312.5	304.6	617.1	38.2	70.4	108.6			
1981/82	108.6	879.2	---	987.8	4.3	4.8	2.0	431.0	442.1	249.1	691.2	42.9	253.7	296.6			
1982/83 <u>2/</u>	296.6	841.1	---	1,137.7	4.2	3.8	1.6	514.5	524.3	214.5	738.8	165.0	233.9	398.9			
1983/84*	398.9	482.0	---	880.9	---	10.0	---	499.9	509.9	225.0	734.9			146.0			
		(+ 25)	(+ 25)					(+ 35)	(+ 35)	(+ 25)	(+ 35)			(+ 55)	(+ 40)		
<u>Area</u>																	
National program	Set aside	Planted	Harvested	Yield	Received by	Kansas City	Texas	Gulf ports	National average	No. 2	No. 2	Yellow	Target	Government support program	Total		
	and diverted	;	for grain	;	harvested; farmers	;	;	;	;	;	;	;	;	;	;		
			;	acres	;	;	;	;	;	;	;	;	;	;	;		
	<u>Million acres</u>		<u>Bushels</u>						<u>Dollars per cwt.</u>						<u>Mill. dol.</u>		
1978/79	13.7	1.4	16.2	13.4	54.5	3.59	4.00	4.40	4.65	3.39	4.07				4/ 243		
1979/80	15.9	1.2	15.3	12.9	62.7	4.18	4.65	4.97	5.54	3.57	4.18				4/ 99		
1980/81	12.8	---	15.6	12.5	46.3	5.25	5.36	5.86	6.16	3.82	4.46				5/ 101		
1981/82	14.3	---	16.0	13.7	64.1	4.27	4.39	4.85	4.97	4.07	4.55				6/ 268		
1982/83 <u>2/</u>	---	0.7	16.1	14.2	59.0	4.55	4.96	5.30	5.57	4.32	4.64				6/ 66		
1983/84	---	5.9	11.6	10.1	47.5	5.54	6.07					4.50	4.86		7/ 125		

Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ Deficiency, disaster, and

- 5/ Disaster payments.
- 6/ Deficiency and disaster payments.
- 7/ Diversion payments.
- 8/ Diversion payments.
- 9/ Deficiency and disaster payments.

the final outcome will be within this range.

Table 4.--Barley: marketing year supply and disappearance, area, and prices, 1978-83

Year beginning June 1	Supply				Disappearance				Million bushels	Ending stocks May 31			
	Begin- ning stocks	Produc- tion	Imports	Total	Food	Alc.	Feed	Total		Exports	disap- pearance	Govt. owned	Privately owned
					Food	bever- ages	Seed	residual				1/ Total	1/ Total
1978/79	173.1	454.8	10.5	638.4	6.0	147.6	13.6	217.5	384.7	25.7	410.4	2.5	225.5
1979/80	228.0	382.8	11.8	622.6	7.0	150.9	14.0	203.8	375.7	54.8	430.5	3.2	188.9
1980/81	192.1	361.0	10.2	563.3	7.0	155.3	13.2	173.8	349.3	76.7	426.0	3.4	133.9
1981/82	137.3	479.3	9.6	666.2	6.9	150.9	16.3	202.3	376.4	100.1	476.5	3.3	146.4
1982/83 2/	149.7	522.4	10.7	682.8	7.2	145.5	17.4	242.7	412.8	47.2	460.0	6.0	216.8
1983/84*	222.8	531.7	10.0	764.5	—	—	175.0	—	339.5	514.5	85.0	599.5	165.0
	(+ 20)	(+ 20)		(+ 20)			(+ 5)	(+ 20)	(+ 20)	(+ 20)	(+ 10)	(+ 25)	(+ 15)

Area	Yield				Average prices				Bushels	Government support program			
	Set-aside	Planted	Harvested	Received	Minneapolis	Portland	No. 2 or No. 3 or	Total		No. 2	Target	Payments to	Total
	National	and	for	by	No. 2 or	No. 3 or	better,	better,		No. 2	loan	price	participants
Program diverted			grain	acre	farmers	3/	better,	better,		3.34	1.83	2.55	7/ 31
					feed	feed	feed	feed					
	Million acres				Bushels					Dollars per bushel			
													Mil. dol.
1978/79	7.5	0.8	10.0	9.2	49.2	1.92	1.80	2.10		1.63	2.25	5/ 97	
1979/80	7.8	0.7	8.1	7.5	50.9	2.29	2.16	2.87		2.69	1.71	2.40	6/ 22
1980/81	8.7	—	8.3	7.3	49.6	2.86	2.60	3.64		3.34	1.83	2.55	7/ 31
1981/82	10.2	—	9.7	9.2	52.3	2.45	2.21	3.06		2.87	1.95	2.60	6/ 63
1982/83 2/	—	0.4	9.6	9.1	57.3	2.16	1.76	2.53		2.52	2.08	2.60	6/ 60
1983/84	—	1.0	10.5	9.9	53.7	2.55-2.80	4/ 2.31	4/ 2.75		4/ 2.73	2.16	2.60	9/ 85

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ June-October 1983 average. 5/ Deficiency, disaster, and diversion payments. 6/ Disaster payments. 7/ Deficiency and diversion payments. \*The probability is 2 out of 3 that the final outcome will be within this range.

Table 5.-Oats: marketing year supply and disappearance, area, and prices, 1978-83

Year beginning June 1	Supply			Disappearance			Exports			Ending stocks May 31				
	Begin- ning stocks	Produc- tion	Imports	Total	Food	Alc. and bever- ages	Seed	Feed	Total	disap- pearance	Govt. owned	Privately owned		
											1/	Total		
Million bushels														
1978/79	313.1	581.7	0.7	895.5	41.0	---	36.1	525.7	602.8	12.7	615.5	2.7	277.3	280.0
1979/80	280.0	526.6	0.9	807.5	40.7	---	34.6	491.7	537.0	4.1	571.1	2.7	233.7	236.4
1980/81	236.4	458.3	1.3	696.0	41.0	---	33.0	431.8	505.8	13.3	519.1	2.3	174.6	176.9
1981/82	176.9	509.2	1.6	697.7	41.2	---	35.4	452.5	529.1	6.6	535.7	0.7	151.3	152.0
1982/83 2/	152.0	617.0	3.9	772.9	41.7	---	43.3	455.7	540.7	3.0	543.7	0.7	228.5	229.2
1983/84*	229.2	472.5	13.0	714.7	-	- 80.0	-	459.7	539.7	5.0	544.7	1.70.0	(+ 20)	(+ 20)
		(+ 20)		(+ 20)				(+ 20)	(+ 25)	(+ 25)	(+ 25)			
Area													Government support program	
National program	Set-aside	Planted	Harvested	Received	Minneapolis	Portland	No. 2	No. 2	National	Average price	Target	Total		
	and 3/	for grain	by farmers 4/	by white, heavy										
	Bushels			Bushels			Bushels per bushel			Mil. dol.				
1978/79	---	16.4	11.1	52.3	1.20	1.43	1.79	1.37	1.03	---	---	---		
1979/80	---	14.0	9.7	54.4	1.36	1.57	1.87	1.60	1.08	---	---	---		
1980/81	---	13.4	8.7	53.0	1.79	2.04	2.42	2.17	1.16	---	---	---		
1981/82	---	13.7	9.4	54.1	1.89	2.14	2.36	2.23	1.24	---	---	---		
1982/83 2/	0.1	14.2	10.6	58.4	1.45	1.69	2.18	1.55	1.31	1.50	---	---		
1983/84	---	0.5	20.2	9.1	52.2	1.65-1.80	5/ 1.80	5/ 1.77	5/ 1.79	1.36	1.60	6/ 20		

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Not included in the program until 1982. 4/ Excludes support payments. 5/ June-October 1983 average. 6/ Deficiency and diversion payments. \*The probability is 2 out of 3 that the final outcome will be within this range.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Not included in the program until 1982. 4/ Excludes support payments. 5/ June-October 1983 average. 6/ Deficiency and diversion payments. \*The probability is 2 out of 3 that the final outcome will be within this range.

Table 6.—Feed grains; feed year supply and disappearance, specified periods, 1978-83  
 (corn, sorghum, oats, barley)

Year and periods	Supply			Domestic use*			Disappearance			Million metric tons	Ending stocks		
	Begin- ning stocks	Produc- tion	Imports	Total	Food	bever- ages	Seed	and residual	Total		Exports	disap- pearance	Total
	October 1	:	:	:	:	:	:	:	:		:	1/ :	:
1978/79	52.7	203.2	0.1	256.0	3.6	1.2	0.1	45.1	50.0	12.9	62.9	3.0	190.1
Oct.-Dec.	193.1	—	0.1	193.2	3.2	1.2	0.3	39.0	43.7	12.6	56.3	3.7	133.2
Jan.-Mar.	136.9	—	0.1	137.0	2.4	0.9	0.8	21.6	25.7	10.6	36.3	3.7	136.9
Apr.-May	100.7	16.0	0.1	116.8	5.2	1.7	0.2	30.4	37.5	23.8	61.3	3.7	100.7
June-Sept.													55.5
Mkt. year	52.7	219.2	0.4	272.3	16.4	5.0	1.4	136.1	156.9	59.9	216.8	3.7	55.5
1979/80	55.5	222.2	0.1	277.8	3.5	1.2	0.1	47.6	52.4	19.2	71.6	3.8	202.4
Oct.-Dec.	206.2	—	0.1	206.3	3.2	1.3	0.3	39.6	44.4	17.8	62.2	3.8	140.3
Jan.-Mar.	144.1	—	2/	144.1	2.5	1.0	0.8	20.3	24.6	11.6	36.2	6.7	101.2
Apr.-May	107.9	14.5	0.1	122.5	6.5	1.9	0.2	30.4	39.0	23.1	62.1	7.7	52.7
June-Sept.													60.4
Mkt. year	55.5	236.7	0.3	292.5	15.7	5.4	1.4	137.9	160.4	71.7	232.1	7.7	52.7
1980/81	60.4	183.4	0.1	243.9	3.7	1.2	0.1	45.5	50.5	20.5	71.0	7.7	165.2
Oct.-Dec.	172.9	—	0.1	173.0	3.2	1.3	0.3	32.1	36.9	18.7	55.6	7.6	109.8
Jan.-Mar.	117.4	—	2/	117.4	2.8	1.0	0.8	20.8	25.4	11.3	36.7	7.6	73.1
Apr.-May	80.7	17.8	0.1	98.6	7.5	1.8	0.2	24.8	34.3	18.8	53.1	7.1	38.4
June-Sept.													45.5
Mkt. year	60.4	201.2	0.3	261.9	17.2	5.3	1.4	123.2	147.1	69.3	216.4	7.1	38.4
1981/82	45.5	230.7	0.1	276.3	4.1	1.1	0.1	47.4	52.7	16.6	69.3	7.4	199.6
Oct.-Dec.	207.0	—	0.1	207.1	3.5	1.4	0.3	36.6	41.8	14.8	56.6	7.7	142.8
Jan.-Mar.	150.5	—	0.1	150.6	3.1	1.0	0.9	20.1	25.1	11.2	36.3	7.9	106.4
Apr.-May	114.3	20.3	0.1	134.7	8.2	1.9	0.2	23.7	34.0	15.8	49.8	8.9	76.0
June-Sept.													84.9
Mkt. year	45.5	251.0	0.4	296.9	18.9	5.4	1.5	127.8	153.6	58.4	212.0	8.9	76.0
1982/83	84.9	234.7	0.1	319.7	4.7	1.4	0.1	48.1	54.3	14.9	69.2	12.2	238.3
Oct.-Dec.	250.5	—	0.1	250.6	3.8	1.5	0.2	41.6	47.1	14.8	61.9	13.6	175.1
Jan.-Mar.	188.7	—	0.1	188.8	3.3	1.0	0.9	24.7	29.9	8.3	38.2	14.0	136.6
Apr.-May	150.6	18.4	0.3	169.3	8.8	2.2	0.2	33.4	44.6	16.1	60.7	33.5	75.1
June-Sept.													108.6
Mkt. year	84.9	253.1	0.6	338.6	20.6	6.1	1.4	147.8	175.9	54.1	230.0	33.5	75.1

<sup>1/</sup> Includes quantity under loan and farmer-owned reserve. <sup>2/</sup> Less than 50,000 metric tons.

Table 7.—Cont.: marketing year supply and disappearance, specified periods, 1978-83

Year and periods	Supply			Disappearance			Ending stocks		
	Begin- ning stocks	Produc- tion	Imports <sup>1</sup>	Food : Aic. <sup>2</sup>	Domestic use	Exports <sup>3</sup>	Total	disap- pearance	Govt. <sup>4</sup> owned
	stocks	;	;	Total	Feed ; bever- ages 2/	Seed ; and residual ; ages 2/	Total	;	Total
Million bushels									
1978/79	:	:	:	:	:	:	:	:	:
Oct.-Dec.	1,111.4	7,267.9	0.1	8,379.4	132.8	17.1	---	1,456.4	1,606.3
Jan.-Mar.	6,319.1	---	0.4	6,319.5	116.9	3.9	1,255.1	1,392.8	4,263.3
Apr.-May	4,500.4	---	0.2	4,500.6	90.3	13.2	11.7	711.0	826.2
June-Sept.	3,287.2	---	0.5	3,287.7	191.2	22.8	3.9	900.3	1,18.2
Mkt. year	1,111.4	7,267.9	1.2	8,380.5	531.2	70.0	19.5	4,322.8	4,943.5
								2,133.1	7,076.6
1979/80	:	:	:	:	:	:	:	:	:
Oct.-Dec.	1,303.9	7,938.8	0.3	9,243.0	128.2	16.3	---	1,549.4	1,693.9
Jan.-Mar.	6,886.2	---	0.3	6,886.5	116.6	18.4	4.0	1,308.2	1,447.2
Apr.-May	4,877.3	---	0.1	4,857.4	93.2	13.9	12.0	682.3	801.4
June-Sept.	3,670.4	---	0.4	3,670.8	244.8	23.7	4.0	978.7	1,251.2
Mkt. year	1,303.9	7,938.8	1.1	9,243.8	582.8	72.3	20.0	4,518.6	5,193.7
								2,432.6	7,626.3
1980/81	:	:	:	:	:	:	:	:	:
Oct.-Dec.	1,617.5	6,644.8	0.2	8,262.5	136.3	16.6	---	1,523.0	1,675.9
Jan.-Mar.	5,058.8	---	0.3	5,859.1	116.3	18.3	4.0	1,100.4	1,239.0
Apr.-May	3,987.2	---	0.1	3,987.3	106.7	13.8	12.2	684.7	817.4
June-Sept.	2,774.2	---	0.6	2,774.8	282.5	24.6	4.0	830.9	1,142.0
Mkt. year	1,617.5	6,644.8	1.2	8,263.5	641.8	73.3	20.2	4,139.0	4,874.3
								2,355.2	7,229.5
1981/82	:	:	:	:	:	:	:	:	:
Oct.-Dec.	1,034.0	8,201.6	0.4	9,236.0	153.2	16.8	---	1,552.8	1,722.8
Jan.-Mar.	6,967.7	---	0.3	6,968.0	128.4	20.2	3.9	1,194.3	1,346.8
Apr.-May	5,131.8	---	0.1	5,131.9	119.4	15.2	12.1	672.1	818.8
June-Sept.	3,904.1	---	0.4	3,904.5	308.4	30.5	3.4	753.3	1,095.6
Mkt. year	1,034.0	8,201.6	1.2	9,236.8	709.4	82.7	19.4	4,172.5	4,984.0
								1,966.9	6,950.9
1982/83	:	:	:	:	:	:	:	:	:
Oct.-Dec.	2,285.9	8,397.3	0.3	10,683.5	175.2	27.9	---	1,543.9	1,747.0
Jan.-Mar.	8,023.8	---	0.2	8,424.0	140.0	28.0	1.3	1,382.4	1,551.7
Apr.-May	6,364.4	---	0.1	6,366.5	125.0	17.6	10.3	822.1	975.0
June-Sept.	5,081.0	---	0.3	5,081.3	334.1	39.8	2.9	1,023.6	1,400.4
Mkt. year	2,285.9	8,397.3	0.9	10,684.1	774.3	113.3	14.5	4,772.0	5,674.1
								1,870.0	7,544.1

1/ Includes industrial products. 2/ Malt beverage and distilled liquor grain products converted to a corn basis. 3/ Includes quantity under loan and farmer-owned reserve.

Table 8.—Sorghum: marketing year supply and disappearance, specified periods, 1978-83

Year and periods beginning October 1	Supply			Disappearance			Ending stocks			
	Beginning stocks	Production	Imports	Total	Food	Alc.	Feed	Exports	disap- pearance	Total
					bever- ages	seed	and residual		Govt. owned	farmer- owned
Million bushels										
1978/79										
Oct.-Dec.	190.5	731.3	---	921.8	1.4	1.1	---	235.7	238.2	46.6
Jan.-Mar.	631.0	---	---	637.0	1.6	1.0	0.2	148.6	151.4	68.3
Apr.-May	417.3	---	---	417.3	1.3	0.7	1.1	64.0	67.1	28.0
June-Sept.	322.2	---	2/	322.2	1.7	1.3	0.5	95.5	99.0	63.7
Mkt. year	190.5	731.3	2/	921.8	6.0	4.1	1.8	543.8	555.7	206.6
1979/80										
Oct.-Dec.	159.5	808.9	---	968.4	1.6	1.3	---	243.6	246.5	74.2
Jan.-Mar.	647.7	---	---	647.7	1.6	1.2	0.2	140.2	143.2	108.5
Apr.-May	396.0	---	---	396.0	1.4	0.7	1.2	54.5	57.8	60.3
June-Sept.	277.9	---	2/	277.9	1.4	1.4	0.6	46.1	49.5	81.9
Mkt. year	159.5	808.9	2/	968.4	6.0	4.6	2.0	484.4	497.0	324.9
1980/81										
Oct.-Dec.	146.5	579.2	2/	725.7	1.6	1.2	---	192.3	195.1	66.2
Jan.-Mar.	466.4	---	2/	464.4	1.6	0.9	0.2	63.8	66.5	84.1
Apr.-May	313.8	---	2/	313.8	0.8	0.7	1.2	84.8	87.5	41.7
June-Sept.	184.6	---	2/	184.6	1.0	1.5	0.6	-39.7	-36.6	112.6
Mkt. year	146.5	579.2	2/	725.7	5.0	4.3	2.0	301.2	312.5	304.6
1981/82										
Oct.-Dec.	108.6	879.2	2/	987.8	1.3	1.3	---	217.9	220.5	77.8
Jan.-Mar.	689.5	---	2/	689.5	1.3	1.3	0.2	150.5	153.3	74.3
Apr.-May	461.9	---	2/	461.9	0.5	0.8	1.2	57.8	60.3	21.8
June-Sept.	379.8	---	2/	379.8	1.2	1.6	0.6	4.8	8.0	75.2
Mkt. year	108.6	879.2	2/	987.8	4.3	4.8	2.0	431.0	442.1	249.1
1982/83										
Oct.-Dec.	296.6	841.1	2/	1,137.7	1.4	1.0	---	259.2	261.6	67.0
Jan.-Mar.	809.1	---	2/	809.1	1.2	1.0	0.1	123.8	126.1	62.7
Apr.-May	620.3	---	2/	620.3	0.4	0.6	0.8	76.5	78.3	14.1
June-Sept.	527.9	---	2/	527.9	1.2	1.2	0.9	55.0	58.3	70.7
Mkt. year	296.6	841.1	2/	1,137.7	4.2	3.8	1.8	514.5	524.3	214.5

1/ Includes quantity under loan and farmer-owned reserve. 2/ Less than 50,000 bushels.

Table 9.—Barley: marketing year supply and disappearance, specified periods, 1979-83

Year and periods	Beginning stocks	Production	Imports	Supply				Disappearance				Exports	disap- pearance	Total	Govt. owned	Ending stocks ;Private:
				Total	Food	Alc.	Feed	Total	Seed	Food	bever-					
Million bushels																
1979/80																
June-Sept.	228.0	382.8	3.7	614.5	2.5	51.9	1.1	87.3	142.8	9.9	152.7	2.9	458.9	461.8		
Oct.-Dec.	461.8	—	2.8	464.6	1.7	34.0	2.0	38.9	76.6	22.4	99.0	3.1	362.5	365.6		
Jan.-Mar.	365.6	—	3.2	368.8	1.7	37.0	3.4	53.3	95.4	11.1	106.5	3.3	259.0	262.3		
Apr.-May	262.3	—	2.1	264.4	1.1	28.0	7.5	24.3	60.9	11.4	72.3	3.2	188.9	192.1		
Mkt. year	228.0	382.8	11.8	622.6	7.0	150.9	14.0	203.8	375.7	54.8	430.5	3.2	188.9	192.1		
1980/81																
June-Sept.	192.1	361.0	3.5	556.6	2.5	56.6	1.2	78.9	139.2	24.9	164.1	3.5	389.0	392.5		
Oct.-Dec.	392.5	—	2.3	394.8	1.7	33.9	2.2	32.2	70.0	21.4	91.4	3.5	299.9	303.4		
Jan.-Mar.	303.4	—	2.7	306.1	1.7	36.0	3.7	38.6	80.0	22.7	102.7	3.4	200.0	203.4		
Apr.-May	203.4	—	1.7	205.1	1.1	28.8	6.1	24.1	60.1	7.7	67.8	3.4	133.9	137.3		
Mkt. year	192.1	361.0	10.2	563.3	7.0	155.3	13.2	173.8	349.3	76.7	426.0	3.4	133.9	137.3		
1981/82																
June-Sept.	137.3	479.3	2.4	619.0	2.5	54.5	1.3	76.5	134.8	32.6	167.4	3.3	448.3	451.6		
Oct.-Dec.	451.6	—	2.4	454.0	1.7	32.1	2.3	51.8	87.9	33.0	120.9	3.3	329.8	333.1		
Jan.-Mar.	333.1	—	2.7	335.8	1.7	37.2	4.0	42.9	85.8	23.1	108.9	3.3	223.6	226.9		
Apr.-May	226.9	—	2.1	229.0	1.0	27.1	8.7	31.1	67.9	11.4	79.3	3.3	146.4	149.7		
Mkt. year	137.3	479.3	9.6	626.2	6.9	150.9	16.3	202.3	376.4	100.1	476.5	3.3	146.4	149.7		
1982/83																
June-Sept.	149.7	522.4	5.1	677.2	2.5	51.3	1.3	95.3	150.4	25.4	175.8	3.9	497.5	501.4		
Oct.-Dec.	501.4	—	1.9	503.3	1.8	32.1	2.8	42.0	78.7	6.5	85.2	4.8	413.3	418.1		
Jan.-Mar.	418.1	—	2.2	420.3	1.8	35.5	3.9	69.7	110.9	12.7	123.6	5.8	290.9	296.7		
Apr.-May	296.7	—	1.5	298.2	1.1	26.6	9.4	35.7	72.8	2.6	75.4	6.0	216.8	222.8		
Mkt. year	149.7	522.4	10.7	682.8	7.2	145.5	17.4	242.7	412.8	47.2	460.0	6.0	216.8	222.8		
1983/84																
June-Sept.	222.8	531.7	3.4	757.9	2.5	54.8	1.2	151.3	209.8	23.4	233.2	9.3	515.4	524.7		
Oct.-Dec.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jan.-Mar.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apr.-May	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mkt. year	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1/ Includes quantity under loan and farmer-owned reserve.

Table 10.—Oats: marketing year supply and disappearance, specified periods, 1979-83

Year and periods beginning June 1	Supply				Disappearance				Ending stocks			
	Begin- ning stocks	Produc- tion	Imports	Total	Domestic use				Exports	disap- pearance	Total	Ending stocks
					Alc.	Food	Feed	and bever- ages				
Million bushels												
1979/80												
June-Sept.	280.0	526.6	0.3	806.9	14.6	---	1.7	221.6	237.9	0.9	238.8	2.6
Oct.-Dec.	568.1	0.2	568.3	10.4	---	1.7	77.5	89.6	1.9	91.5	2.6	565.5
Jan.-Mar.	476.8	0.2	477.0	10.3	---	6.9	119.7	136.9	0.5	137.4	2.7	474.2
Apr.-May	339.6	0.2	339.8	5.4	---	24.3	72.9	102.6	0.8	103.4	2.7	339.6
Mkt. year	280.0	526.6	0.9	807.5	40.7	---	34.6	491.7	567.0	4.1	571.1	2.7
1980/81												
June-Sept.	236.4	458.3	0.6	695.3	15.0	---	1.8	190.0	206.8	3.9	210.7	2.7
Oct.-Dec.	464.6	0.2	484.8	10.0	---	1.8	79.2	91.0	2.8	93.8	2.7	484.6
Jan.-Mar.	391.0	0.3	391.3	10.0	---	7.0	115.6	132.6	2.6	135.2	2.5	391.0
Apr.-May	256.1	0.2	256.3	6.0	---	22.4	47.0	75.4	4.0	79.4	2.3	256.1
Mkt. year	236.4	458.3	1.3	696.0	41.0	---	33.0	431.8	505.8	13.3	519.1	2.3
1981/82												
June-Sept.	176.9	509.2	0.3	686.4	16.0	---	2.0	206.7	224.7	3.2	227.9	1.7
Oct.-Dec.	458.5	0.2	458.7	10.0	---	2.0	80.3	92.3	1.2	93.5	1.7	456.8
Jan.-Mar.	365.2	0.2	365.4	10.0	---	7.3	110.0	127.3	1.2	128.5	1.7	365.2
Apr.-May	236.9	0.9	237.8	5.2	---	24.1	55.5	84.6	1.0	85.8	0.7	236.9
Mkt. year	176.9	509.2	1.6	687.7	41.2	---	35.4	452.5	529.1	6.6	535.7	0.7
1982/83												
June-Sept.	152.0	617.0	0.8	769.8	16.2	---	2.0	169.0	187.2	1.3	188.5	0.6
Oct.-Dec.	581.3	0.2	581.5	10.0	---	2.0	94.8	106.8	1.0	107.8	0.7	580.7
Jan.-Mar.	473.7	1.6	475.3	10.7	---	7.6	124.2	142.5	0.3	142.8	0.7	473.0
Apr.-May	332.5	1.3	333.8	4.8	---	31.7	67.7	104.2	0.4	104.6	0.7	332.5
Mkt. year	152.0	617.0	3.9	772.9	41.7	---	43.3	455.7	540.7	3.0	543.7	0.7
1983/84												
June-Sept.	229.2	472.5	11.7	713.4	15.6	---	1.9	192.6	210.3	0.8	211.1	1.1
Oct.-Dec.												
Jan.-Mar.												
Apr.-May												
Mkt. year												

1/ Includes quantity under loan and farmer-owned reserve.

Table 11.—Average prices received by farmers, United States, by months, 1979-83

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average weighted by sales 1/
<u>Dollars per bushel</u>													
<b>Corn</b>													
1979	2.41	2.27	2.38	2.45	2.39	2.40	2.36	2.42	2.49	2.73	2.92	3.01	2.52
1980	2.99	3.10	3.19	3.19	3.22	3.25	3.24	3.24	3.17	3.14	2.87	2.55	3.11
1981	2.45	2.34	2.39	2.54	2.44	2.46	2.55	2.60	2.57	2.50	2.30	2.15	2.50
1982	1.98	2.13	2.26	2.36	2.56	2.71	2.94	3.03	3.04	3.13	3.35	3.32	2.70
1983	*3.30												
<u>Dollars per cwt.</u>													
<b>Sorghum</b>													
1979	3.90	3.99	3.90	4.05	3.98	4.05	3.96	4.04	4.49	4.95	5.12	5.12	4.18
1980	5.36	5.48	5.49	5.48	5.33	5.17	5.25	5.16	5.03	4.84	4.55	4.07	5.25
1981	3.90	3.87	3.95	4.09	4.08	4.00	4.10	4.35	4.17	3.96	3.95	3.80	4.27
1982	3.70	3.78	3.97	4.09	4.42	4.67	4.92	5.05	5.06	5.03	5.29	5.26	4.55
1983	*5.10												
Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Average weighted by sales 1/
<u>Dollars per bushel</u>													
<b>Oats</b>													
1979	1.35	1.33	1.24	1.29	1.31	1.41	1.31	1.39	1.37	1.34	1.38	1.43	1.36
1980	1.48	1.50	1.53	1.63	1.65	1.84	1.92	1.98	2.01	2.08	2.05	2.05	1.79
1981	1.99	1.84	1.72	1.74	1.78	1.88	1.94	1.97	1.99	2.02	1.99	1.99	1.89
1982	1.88	1.57	1.39	1.35	1.32	1.40	1.44	1.47	1.48	1.48	1.54	1.54	1.45
1983	1.50	1.46	1.45	1.55	*1.66								
<b>Barley</b>													
1979	2.30	2.22	2.23	2.33	2.32	2.40	2.32	2.27	2.23	2.18	2.15	2.21	2.29
1980	2.36	2.52	2.59	2.65	2.81	2.90	2.97	3.09	3.05	3.04	3.04	3.00	2.86
1981	2.94	2.41	2.37	2.44	2.38	2.49	2.48	2.50	2.40	2.40	2.42	2.56	2.45
1982	2.39	2.16	2.20	2.17	1.98	2.06	2.19	2.16	2.00	2.03	2.20	2.27	2.16
1983	2.32	2.20	2.34	2.46	*2.55								
Item and year beginning May 1	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average weighted by sales
<u>Dollars per ton</u>													
<b>Hay (mid-month)</b>													
1979	65.60	58.00	56.00	57.50	59.00	60.80	58.90	60.10	59.10	60.00	57.40	60.10	59.50
1980	69.30	65.10	67.00	67.20	71.90	77.20	75.00	74.80	72.80	72.50	69.80	68.20	71.00
1981	75.30	66.90	64.00	63.90	62.70	64.80	65.40	65.70	67.90	69.90	69.50	73.30	67.10
1982	77.50	69.60	66.40	65.00	65.90	68.20	68.90	68.10	70.10	74.60	70.50	75.30	68.60
1983	83.30	75.90	72.00	72.20	74.20	78.50							

1/ Includes an allowance for unredeemed loans and purchase agreement deliveries valued at the average loan rate, by States; excludes Government payments.

\*Preliminary.

Source: Agricultural Prices, Crop Reporting Board, USDA.

Table 12.—Cash prices at principal markets, 1979-83

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Simple average
<u>Dollars per bushel</u>													
<b>CORN No. 2 Yellow, St. Louis 1/</b>													
1979	2.59	2.51	2.66	2.50	2.64	2.54	2.53	2.60	2.66	3.01	3.31	3.26	2.73
1980	3.35	3.53	3.59	3.60	3.47	3.42	3.49	3.42	3.33	3.34	3.03	2.61	3.35
1981	2.53	2.59	2.54	2.65	2.61	2.66	2.78	2.78	2.75	2.68	2.42	2.32	2.61
1982	2.32	2.43	2.49	2.52	2.79	2.99	3.24	3.24	3.27	3.39	3.68	3.60	3.00
1983	*3.50												
<b>CORN No. 2 Yellow, Omaha</b>													
1979	2.37	2.32	2.36	2.26	2.33	2.23	2.32	2.43	2.50	2.81	2.98	3.01	2.49
1980	3.16	3.34	3.30	3.29	3.18	3.17	3.24	3.24	3.19	3.15	2.79	2.51	3.13
1981	2.44	2.39	2.37	2.47	2.45	2.48	2.61	2.65	2.65	2.54	2.23	2.23	2.46
1982	2.12	2.35	2.37	2.42	2.62	2.82	3.09	3.10	3.11	3.18	3.39	3.32	2.82
1983	*3.23												
<b>SORGHUM No. 2 Yellow, Kansas City</b>							<u>Dollars per cwt</u>						
1979	4.42	4.41	4.57	4.21	4.35	4.20	4.15	4.31	4.49	5.36	5.71	5.61	4.65
1980	5.65	5.91	5.82	5.79	5.52	5.46	5.49	5.38	5.23	5.29	4.58	4.16	5.36
1981	4.14	4.14	4.27	4.44	4.26	4.28	4.45	4.48	4.50	4.38	4.02	4.06	4.29
1982	3.85	4.25	4.37	4.54	4.87	5.08	5.30	5.37	5.37	5.32	5.69	5.55	4.96
1983	*5.37												
Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
<u>Dollars per bushel</u>													
<b>OATS No. 2 Heavy, Minneapolis</b>													
1979	1.68	1.60	1.47	1.55	1.65	1.67	1.59	1.52	1.50	1.48	1.52	1.62	1.57
1980	1.67	1.80	1.70	1.86	1.96	2.15	2.16	2.20	2.25	2.23	2.21	2.23	2.04
1981	2.18	2.02	1.99	2.02	2.09	2.28	2.10	2.23	2.26	2.16	2.21	2.16	2.14
1982	2.12	1.87	1.53	1.51	1.51	1.67	1.67	1.67	1.67	1.63	1.73	1.71	1.69
1983	1.67	1.60	1.79	1.94	*2.00								
<b>BARLEY No. 2 or Better Feed, Minneapolis</b>													
1979	2.16	2.39	2.15	2.22	2.34	2.11	2.15	2.09	2.04	2.06	2.12	2.09	2.16
1980	2.15	2.48	2.39	2.43	2.77	3.03	2.75	2.81	2.90	2.63	2.51	2.39	2.60
1981	2.09	2.26	2.35	2.21	2.26	2.31	2.06	2.20	2.27	2.16	2.16	2.24	2.21
1982	2.12	1.85	1.72	1.69	1.54	1.58	1.59	1.63	1.72	1.73	2.01	1.95	1.76
1983	1.96	1.95	2.42	2.61	*2.60								
<b>BARLEY No. 3 or Better Malting, 65% or Better Plump, Minneapolis</b>													
1979	2.80	2.82	2.67	3.10	3.18	3.06	2.93	2.87	2.81	2.69	2.73	2.82	2.87
1980	2.99	3.36	3.27	3.63	3.80	3.88	3.77	3.75	3.83	3.71	3.84	3.80	3.64
1981	3.34	2.95	3.15	3.05	3.02	3.07	2.92	3.00	3.14	2.99	2.98	3.05	3.06
1982	2.93	2.63	2.48	2.37	2.42	2.45	2.37	2.38	2.42	2.45	2.68	2.76	2.53
1983	2.60	2.54	2.76	2.90	*2.96								

\* Preliminary.

Source: Grain and Feed Market News, AMS, USDA.

Table 13.--Feed-price ratios for livestock, poultry, and milk, by months, 1979-83

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
<b>HOG/CORN, U.S. basis 1/</b>													
1979	14.0	15.2	15.5	14.8	15.4	13.9	11.9	11.8	13.3	15.1	15.8	15.3	14.3
1980	15.8	14.7	13.8	12.8	12.8	11.9	12.0	12.6	15.0	15.7	17.1	19.1	14.4
1981	18.4	17.7	16.3	17.1	19.8	19.8	20.1	21.8	22.4	23.2	26.6	28.6	21.0
1982	28.2	24.6	23.7	23.7	21.9	18.6	16.0	15.1	14.4	13.9	13.9	13.3	18.9
1983 2/	12.2												
<b>BEEF-STEER/CORN, Omaha 3/</b>													
1979	27.8	28.9	29.1	29.4	29.0	30.0	27.2	26.6	26.6	25.1	24.3	23.1	27.3
1980	21.3	19.5	19.5	19.1	19.3	19.4	20.0	20.6	21.4	21.5	23.8	26.0	21.0
1981	25.2	25.0	25.0	24.6	25.9	26.5	26.5	27.2	26.5	26.1	29.2	27.5	26.3
1982	27.7	25.1	25.2	24.5	23.4	22.7	21.9	21.8	21.2	19.6	18.1	17.8	22.4
1983 2/	18.4												
<b>MILK/FEED, U.S. basis 4/</b>													
1979	1.55	1.59	1.54	1.54	1.56	1.56	1.55	1.53	1.50	1.48	1.42	1.40	1.52
1980	1.43	1.40	1.39	1.39	1.39	1.41	1.39	1.35	1.36	1.40	1.43	1.48	1.40
1981	1.53	1.56	1.54	1.55	1.54	1.52	1.50	1.46	1.46	1.47	1.49	1.57	1.52
1982	1.61	1.63	1.60	1.58	1.56	1.55	1.48	1.45	1.43	1.45	1.41	1.36	1.51
1983 2/	1.38												
<b>EGG/FEED, U.S. basis 5/</b>													
1979	6.1	6.8	7.3	6.6	5.9	6.3	6.0	5.3	5.5	5.7	6.0	6.2	6.1
1980	5.7	6.0	6.6	5.9	5.7	5.7	6.0	5.2	5.2	5.5	5.8	6.4	5.8
1981	6.5	7.2	6.7	6.6	6.8	7.2	6.6	5.6	5.3	5.7	5.3	6.0	6.3
1982	6.3	6.3	6.0	5.7	5.8	6.2	5.8	6.1	5.9	5.7	6.0	6.0	6.0
1983 2/	6.3												
<b>BROILER/FEED, U.S. basis 6/</b>													
1979	2.2	2.6	2.6	2.8	2.6	2.5	2.3	2.5	2.6	3.3	3.0	2.9	2.7
1980	2.8	2.5	2.5	2.6	2.6	2.6	2.3	2.4	2.6	2.6	2.5	2.4	2.5
1981	2.4	2.4	2.3	2.6	2.6	2.6	2.5	2.6	2.7	2.6	2.4	2.6	2.5
1982	2.5	2.5	2.4	2.6	2.7	2.4	2.3	2.4	2.6	2.8	2.8	2.8	2.6
1983 2/	2.5												
<b>TURKEY/FEED, U.S. basis 7/</b>													
1979	3.9	4.5	4.3	3.8	3.6	3.5	3.4	3.1	3.1	3.5	3.5	3.7	3.7
1980	3.9	3.8	3.5	3.1	3.1	3.2	3.0	3.1	3.3	3.3	3.2	3.1	3.3
1981	2.8	3.1	2.9	2.9	2.9	3.0	3.0	2.9	3.2	3.4	3.4	3.8	3.1
1982	3.9	3.9	3.0	2.8	2.9	2.9	2.7	2.9	2.9	2.8	2.8	3.0	3.0
1983 2/	3.0												

1/ Number bushels of corn equal in value to 100 pounds of hog, live weight.

2/ Preliminary.

3/ Based on price of beef-steers 900-1,100 pounds, choice instead of average grade all steers previously published.

4/ Pounds of 16 percent mixed dairy feed equal in value to 1 pound whole milk.

5/ Pounds of laying feed equal in value to 1 dozen eggs.

6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight.

7/ Pounds of turkey grower feed equal in value to 1 pound turkey, live weight.

Source: Agricultural Prices, Crop Reporting Board, USDA.

Table 14.--Price trends, selected feeds and corn products

Item	Unit	Oct.-Sept. 1982/83 1/	1983				
			June	July	Aug.	Sept.	Oct.
<u>WHOLESALE, MOSTLY BULK 2/</u>							
Soybean meal, 44% solvent, Decatur	\$/ton	187	176	189	233	234	229
Soybean meal, high protein, Decatur	"	201	191	205	246	247	243
Cottonseed meal, 41% solvent, Memphis	"	177	165	187	227	238	220
Linseed meal, 34% solvent, Minneapolis	"	145	151	143	157	175	178
Peanut meal, Southeast mills	"	198	183	195	225	253	—
Meat meal, Ill. prod. pts.	"	219	201	195	247	240	210
Fishmeal, 65% protein, East Coast	"	362	337	325	397	415	425
Gluten feed, Chicago	"	118	114	120	127	135	141
Gluten meal, 60% protein, Chicago	"	251	213	243	300	326	309
Brewers' dried grains, Milwaukee	"	106	102	106	109	122	128
Distillers' dried grain, Lawrenceburg	"	145	150	151	156	168	175
Feather meal, Arkansas Pts.	"	239	194	209	274	311	274
Wheat bran, Kansas City	"	88	77	83	103	110	113
Wheat middlings, Kansas City	"	88	77	83	103	110	113
Rice bran, f.o.b. mills, Arkansas	"	70	69	64	69	84	93
Hominy feed, Ill. pts.	"	97	109	113	117	122	119
Alfalfa meal, dehy., Kansas City	"	121	116	115	120	124	129
Cane molasses, New Orleans	"	49	49	54	62	69	73
Molasses beet pulp, Los Angeles	"	122	123	119	120	130	128
Animal fat, Ill. prod. pts.	c/lb.	13.1	13.8	12.4	14.4	15.6	14.9
Urea, 42% N, Fort Worth	\$/ton	213	210	210	210	225	226
Corn, No. 2 white, Kansas City	\$/bu.	3.34	3.95	3.80	3.99	4.35	4.97
<u>PRICES PAID, U.S. BASIS 3/</u>							
Soybean meal, 44%	\$/cwt.	13.58	13.50	13.50	14.70	15.70	15.80
Cottonseed meal, 41%	"	13.79	13.90	14.00	14.50	15.30	15.80
Wheat bran	"	9.80	9.85	9.80	9.80	10.00	10.20
Wheat middlings	"	9.40	9.49	9.41	9.48	9.64	9.76
Broiler grower feed	\$/ton	213	217	217	228	240	237
Laying feed	"	195	201	202	208	218	218
Turkey grower feed	"	237	246	243	252	264	263
Chick starter	"	218	222	222	235	248	245
Dairy feed, 16%	"	180	184	182	189	198	199
Beef cattle concentrate, 32-36% protein	\$/cwt.	11.87	11.90	12.00	12.20	12.90	12.80
Hog concentrate, 38-42% protein	"	15.18	15.20	15.00	16.10	17.20	16.90
Stock salt	"	6.17	6.20	6.19	6.19	6.26	6.24
<u>CORN PRODUCTS, WHOLESALE 4/</u>							
Corn meal, New York	\$/cwt.	14.76	15.26	15.80	16.67	16.69	16.39
White	"	12.73	13.26	13.46	14.67	14.69	14.43
Yellow	"	9.84	10.36	10.90	11.77	11.79	11.53
Grits (brewers'), Chicago	"	12.73	13.14	14.03	15.30	14.99	13.60
Syrup, Chicago West	c/lb.	24.23	24.25	24.25	24.58	24.75	24.25
Sugar (dextrose), Chicago West	"	15.65	20.27	20.92	20.92	20.92	20.92
High-fructose (dried weight in tank cars), Chicago West	"	10.71	12.00	12.63	12.68	13.07	12.56

1/ Preliminary. 2/ Grain and Feed Market News, AMS, USDA, except urea which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota. 3/ Agricultural Prices, ERS, USDA. 4/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources.

Table 15.--Hay (all): acreage, supply, and disappearance, 1978-83

Item	Unit	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84 1/
Acreage harvested	Mil. acres	62.1	61.7	59.4	60.2	60.7	60.4
Yield per acre	Tons	2.32	2.40	2.21	2.38	2.51	2.36
Carryover (May 1)	Mil. short tons	24.2	30.1	33.3	25.4	25.2	29.0
Production	"	143.8	147.8	131.0	143.2	152.4	142.7
Supply	"	168.0	177.9	164.3	168.6	177.6	171.7
Disappearance	"	137.9	144.6	138.9	143.4	148.6	NA
Roughage-consuming animal units (RCAU)	Mil. units	86.0	87.5	89.9	91.8	90.4	90.6
Supply per RCAU	Tons	1.95	2.03	1.83	1.84	1.96	1.89
Disappearance per RCAU	"	1.60	1.65	1.55	1.56	1.64	NA

1/ October 1983 crop indications. NA = Not available.

Table 16.--Hay production, pasture-range index (October 1), and prices received by farmers, 1978-83

Year	North-east	Lake States	Corn Belt	Northern Plains	Appalachian	South-east	Delta States	Southern Plains	Mountain	Pacific	United States 1/
<u>Thousand tons</u>											
<u>1978</u>											
Hay production	12,613	24,250	24,250	27,292	8,296	2,969	3,292	7,590	19,606	12,144	142,209
Pasture-range index	80	88	79	78	82	66	73	56	79	95	78
<u>1979</u>											
Hay production	12,748	25,298	24,465	26,678	8,308	3,429	3,910	11,099	19,555	12,357	147,847
Pasture-range index	87	82	81	75	94	86	85	78	74	80	82
<u>1980</u>											
Hay production	12,707	23,504	21,861	19,063	7,929	2,673	2,873	7,830	19,248	13,339	131,027
Pasture-range index	64	88	77	55	48	54	40	43	76	89	63
<u>1981</u>											
Hay production	12,727	23,155	24,204	23,627	8,475	3,070	3,860	10,266	20,538	13,279	143,201
Pasture-range index	83	86	86	77	82	67	76	82	78	80	80
<u>1982</u>											
Hay production	13,224	25,801	24,480	28,046	8,810	3,488	3,931	9,884	21,248	13,512	152,424
Pasture-range index	77	85	86	95	82	79	80	62	92	83	81
<u>1983</u>											
Hay production	12,944	25,352	18,883	25,895	8,212	2,800	3,347	10,487	21,416	13,318	142,654
Pasture-range index	67	79	47	69	48	67	62	58	86	93	67
Mid-October prices	Pennsylvania	Wisconsin	Iowa	Kansas	Kentucky	Arkansas	Texas	Colorado	California	United States 1/	
<u>Dollars per ton</u>											
1978	63.00	34.00	43.50	45.00	49.50	40.50	55.50	47.50	53.50	47.10	
1979	48.00	30.50	45.00	46.50	51.50	43.00	53.00	52.50	86.00	60.80	
1980	66.00	40.00	56.00	56.00	59.50	52.50	74.00	58.50	99.00	77.20	
1981	93.00	62.00	52.00	57.00	62.00	44.00	58.00	65.00	70.00	64.80	
1982	81.00	63.00	51.00	56.00	66.00	50.00	65.00	61.00	89.00	68.20	
1983	93.00	76.00	72.00	80.00	82.00	69.00	74.00	69.00	96.00	78.50	

1/ U.S. price weighted by regional production.

Source: Crop Reporting Board, USDA.

Table 17.—Consumption of feed by kind of livestock, 1976-83

Year beginning October 1	Concentrates						Roughages		
	Feed grains <u>1/</u>	All grains <u>2/</u>	High protein <u>3/</u>	Other feed <u>4/</u>	Total concen- trates	Corn	Soybean meal <u>5/</u>	Hay	Other harvested roughage <u>6/</u>
<u>Million metric tons</u>									
<b>DAIRY ANIMALS</b>									
1976	19.3	19.3	2.0	4.5	25.8	15.0	1.3	41.3	56.4
1977	21.2	21.9	2.2	4.3	28.6	16.3	1.5	38.2	58.9
1978	22.8	23.3	2.2	4.3	29.8	18.7	1.4	42.6	59.2
1979	22.9	25.6	2.2	1.3	29.1	18.7	1.6	40.2	58.2
1980	21.9	22.1	1.9	4.4	28.4	16.8	1.6	37.6	46.3
1981	22.7	23.2	2.5	3.9	30.1	18.9	1.7	46.2	53.9
1982	25.3	26.0	2.5	4.1	32.6	20.3	1.7	50.6	42.8
1983 <u>7/</u>	24.5	25.4	2.5	4.2	32.1	19.4	1.6	NA	NA
<b>CATTLE ON FEED</b>									
1976	26.2	26.3	1.1	2.6	29.9	19.5	0.8	22.8	9.1
1977	28.7	30.9	1.2	2.5	34.6	21.0	1.1	12.2	5.9
1978	31.2	32.5	1.2	2.8	36.5	22.4	1.0	26.5	10.8
1979	28.5	29.0	1.1	2.1	32.2	21.3	.9	25.7	10.7
1980	22.1	22.1	.7	2.7	25.5	17.8	.7	28.1	10.8
1981	23.9	24.8	.9	1.9	27.6	17.9	.9	28.3	10.6
1982	27.5	29.3	1.1	1.9	32.3	20.3	1.0	28.8	9.2
1983 <u>7/</u>	23.8	26.0	.9	1.8	28.7	16.8	.6	NA	NA
<b>OTHER BEEF CATTLE</b>									
1976	7.0	7.0	1.2	3.4	11.6	5.5	1.2	65.2	72.4
1977	7.1	7.3	1.3	3.0	11.6	5.5	1.5	57.0	71.3
1978	7.9	8.0	1.3	2.5	11.8	6.1	1.3	64.4	72.7
1979	7.1	7.1	1.3	2.7	11.1	5.7	.9	55.5	65.6
1980	6.9	6.9	1.2	2.4	10.5	5.7	.9	56.9	52.4
1981	7.6	7.7	1.4	2.2	11.3	6.1	.9	71.6	70.5
1982	7.0	7.1	1.3	2.2	11.0	5.6	.9	76.9	9.2
1983 <u>7/</u>	7.2	7.5	1.2	2.1	10.8	5.5	1.0	NA	NA
<b>HENS, PULLETS, AND CHICKENS RAISED</b>									
1976	11.7	12.0	3.4	2.5	17.9	8.8	2.5	--	--
1977	11.8	13.3	3.5	2.4	19.2	8.9	2.9	--	--
1978	13.4	14.4	3.5	2.4	20.3	10.0	2.8	--	--
1979	14.2	15.0	3.9	1.8	20.7	11.0	3.1	--	--
1980	13.7	14.3	3.3	2.6	20.2	9.9	2.9	--	--
1981	14.2	15.3	3.8	2.1	21.2	11.0	3.0	--	--
1982	14.4	15.8	3.8	2.1	21.7	10.2	3.1	--	--
1983 <u>7/</u>	13.9	15.7	3.5	2.2	21.4	10.4	2.9	--	--
<b>BROILERS</b>									
1976	6.9	6.9	3.3	0.8	11.0	6.6	2.5	--	--
1977	7.5	7.8	3.7	.8	12.3	7.1	3.0	--	--
1978	9.3	9.6	4.1	.7	14.4	8.9	3.2	--	--
1979	9.7	9.9	4.3	.9	15.1	9.3	3.5	--	--
1980	10.1	10.3	4.3	.8	15.4	9.8	3.6	--	--
1981	10.9	11.2	4.9	.8	16.9	10.4	3.7	--	--
1982	11.4	11.8	5.1	.8	17.7	10.9	3.7	--	--
1983 <u>7/</u>	11.1	11.7	5.0	.8	17.5	10.6	3.7	--	--

Continued--

Table 17.--Consumption of feed by kind of livestock, 1976-83--Continued

Year beginning October 1	Concentrates						Roughages		
	Feed grains <u>1/</u>	All grains <u>2/</u>	High protein <u>3/</u>	Other feed <u>4/</u>	Total concen- trates	Corn	Soybean meal <u>5/</u>	Hay	Other harvested roughage <u>6/</u>
<u>Million metric tons</u>									
<b>TURKEYS</b>									
1976	1.8	1.8	1.4	0.2	3.4	1.6	0.9	—	—
1977	2.1	2.3	1.7	.3	4.3	1.8	1.1	—	—
1978	2.5	2.7	1.8	.3	4.8	2.2	1.4	—	—
1979	2.6	2.8	1.9	.3	5.0	2.4	1.4	—	—
1980	2.7	2.8	1.8	.4	5.0	2.4	1.4	—	—
1981	2.8	3.0	2.0	.2	5.3	2.5	1.3	—	—
1982	2.9	3.1	2.0	.3	5.4	2.6	1.9	—	—
1983 <u>7/</u>	2.8	3.1	1.9	.4	5.4	2.4	1.4	—	—
<b>HOGS</b>									
1976	33.8	33.9	5.2	2.4	41.5	31.7	4.4	—	—
1977	34.7	35.6	5.8	2.2	43.6	34.5	5.0	—	—
1978	43.0	43.6	6.2	2.4	52.2	40.1	5.8	—	—
1979	46.0	46.5	6.9	2.1	55.5	43.3	6.6	—	—
1980	40.0	40.1	5.4	2.3	47.8	38.0	5.4	—	—
1981	38.4	38.9	5.6	1.8	46.3	36.1	5.8	—	—
1982	39.2	39.5	6.0	1.6	50.4	39.2	5.7	—	—
1983 <u>7/</u>	35.1	36.1	5.0	1.6	42.7	32.7	4.8	—	—
<b>OTHER LIVESTOCK AND UNALLOCATED*</b>									
1976	5.2	5.2	1.1	1.4	7.7	2.0	0.4	9.4	4.7
1977	5.2	5.3	1.1	1.4	7.8	2.1	.6	10.0	5.4
1978	6.0	6.1	1.1	1.2	8.4	1.8	.6	9.4	4.7
1979	6.8	7.0	1.6	1.4	10.0	3.1	.9	10.3	5.1
1980	5.7	5.8	1.1	1.0	7.9	2.6	.7	9.3	5.3
1981	6.7	6.9	1.7	1.5	9.8	3.1	.7	11.6	5.1
1982* <u>7/</u>	16.0	16.2	1.4	1.2	18.8	11.5	.6	12.0	4.9
1983 <u>7/</u>	6.5	6.8	1.3	1.2	9.3	1.5	.8	NA	NA
<b>ALL LIVESTOCK AND POULTRY</b>									
1976	112.0	112.3	18.8	17.7	148.9	90.7	13.7	138.7	142.6
1977	118.5	124.7	20.5	16.9	162.1	95.1	16.0	128.0	155.5
1978	136.1	140.2	21.3	16.7	178.2	109.8	17.0	131.0	134.6
1979	138.0	140.6	23.0	15.2	178.8	114.8	18.9	131.6	140.6
1980	123.0	124.5	19.8	16.5	160.8	105.1	17.3	134.7	114.8
1981	127.9	131.8	22.5	14.1	168.4	106.0	17.6	173.3	140.1
1982	146.6	152.7	23.1	14.1	189.9	121.8	18.0	168.3	115.5
1983 <u>7/</u>	124.8	132.2	21.3	14.5	168.0	100.3	16.8	NA	NA

1/ Corn, sorghum, oats and barley. 2/ Feed grains, wheat and rye. 3/ Oilseed meals, animal and grain proteins. 4/ Dry milling byproducts, fats and oils, alfalfa meal, molasses, screenings, salt, minerals and urea. 5/ 44 percent crude protein content. Soybean meal consumption reflects adjustments for crude protein levels and net supply used for feed. 6/ Silage, beet pulp and straw. 7/ Preliminary. NA = Not available.

Table 18.--Feed concentrate balance, number of animal units,  
and feed per unit, annual, 1976-83

Item	Year beginning October							
	1976	1977	1978	1979	1980	1981	1982 1/	1983 2/
<u>Million metric tons</u>								
<b>Feed Grains</b>								
October 1 stocks	27.1	43.6	52.7	55.5	60.4	45.5	84.9	108.6
Production								
Corn	159.7	165.2	184.6	201.6	168.8	208.4	213.3	111.5
Sorghum	18.1	19.8	18.6	20.5	14.7	22.3	21.4	12.2
Oats	10.9	8.4	7.6	6.6	7.3	9.0	6.9	7.4
Barley	9.3	9.9	8.3	7.9	10.4	11.4	11.6	10.0
Total	198.0	203.3	219.1	236.6	201.2	251.1	253.2	141.1
Imports	.3	.3	.3	.3	.3	.3	.3	.3
Wheat fed	6.6	5.0	4.9	2.1	1.4	5.7	6.0	7.3
Rye fed	.2	.3	.2	.2	.2	.1	.1	.1
Byproduct feeds fed	31.1	33.8	34.5	38.1	37.9	37.4	37.2	38.9
Total supply	263.3	286.3	311.7	332.8	301.4	340.1	381.7	296.3
<b>Concentrates fed</b>								
Corn	90.7	95.1	109.8	114.8	105.1	106.0	113.3	100.3
Sorghum	10.5	11.6	13.8	12.3	7.7	10.9	12.1	11.9
Oats	7.4	7.5	7.6	6.7	6.5	6.0	6.6	6.7
Barley	3.4	4.3	4.8	4.3	3.7	4.8	5.3	5.9
Wheat and rye	6.8	5.3	5.1	2.3	1.5	5.8	6.1	7.4
Oilseed meals	14.4	16.8	18.4	19.5	16.3	18.6	19.2	17.4
Animal protein feeds	2.7	2.8	2.1	2.3	2.5	2.0	2.0	1.9
Grain protein feeds	1.5	1.7	1.8	1.2	1.0	1.6	1.9	2.0
Other byproduct feeds	12.8	12.6	12.4	12.0	12.4	12.0	10.7	14.5
Total	150.2	157.7	175.8	175.4	156.7	167.7	180.5	168.0
<u>Million units</u>								
<b>Grain-consuming animal units (GCAU's)</b>								
Dairy cattle	12.2	12.1	12.0	12.1	12.2	12.3	12.4	12.2
Cattle on feed	19.3	20.6	20.3	18.8	17.8	16.3	18.4	17.8
Other cattle	5.2	4.8	4.5	4.6	4.8	4.9	4.8	4.7
Hogs	19.4	19.6	21.7	23.8	22.3	20.2	20.3	20.9
Poultry	18.3	18.8	20.1	21.1	21.6	21.8	20.6	20.5
Other livestock	1.7	1.8	1.8	1.9	2.0	2.0	2.0	2.1
Total	76.1	77.7	80.4	82.3	80.7	77.5	78.5	78.2
<u>Tons per unit</u>								
<b>Concentrates fed/GCAU</b>								
Four feed grains	1.47	1.53	1.69	1.68	1.52	1.65	1.77	1.62
All concentrates	1.97	2.03	2.19	2.13	1.94	2.12	2.30	2.08

1/ Preliminary. 2/ Forecast (10/27/83).

Table 19.--High-protein feed: quantity fed and high-protein animal units, 1976-83 1/

Year beginning October	Quantity fed (in 44% protein soybean meal equivalent)			Total	High-protein animal units	Fed per animal unit
	Oilseed meal	Animal protein	Grain protein			
--- 1,000 metric tons ---						
1976	15,118	3,126	1,193	19,437	102.9	416
1977	17,259	3,042	982	21,283	104.5	449
1978	18,472	3,050	1,028	22,550	108.0	460
1979	20,152	3,210	689	24,051	114.6	463
1980	18,365	3,053	566	21,984	113.5	427
1981	19,123	3,080	924	23,127	110.2	463
1982 2/	20,275	2,432	1,063	23,770	109.0	481
1983 3/	19,009	2,210	1,010	22,229	NA	NA

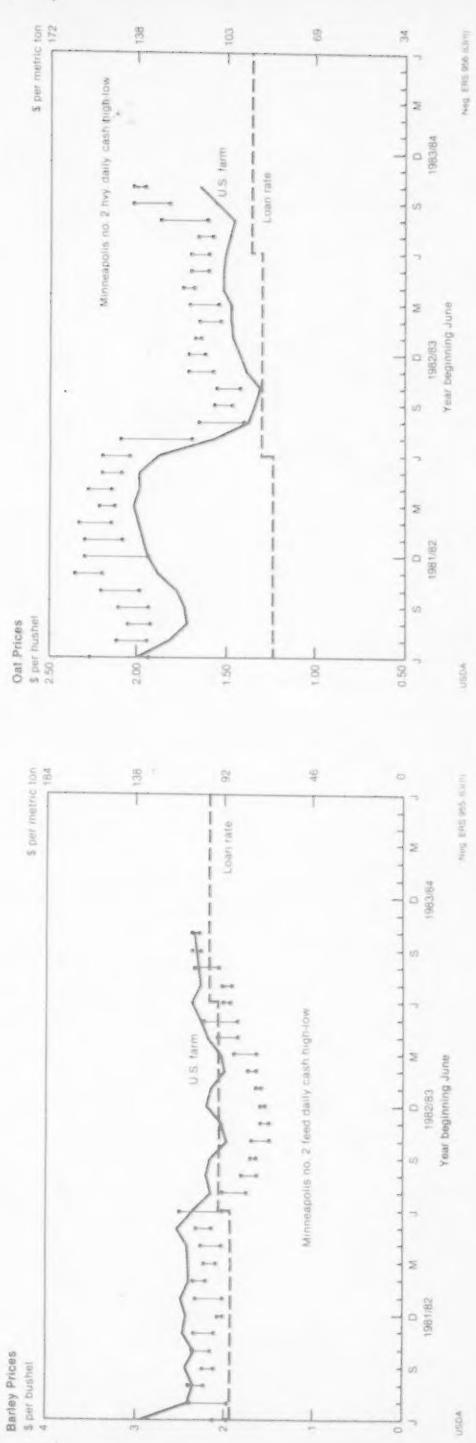
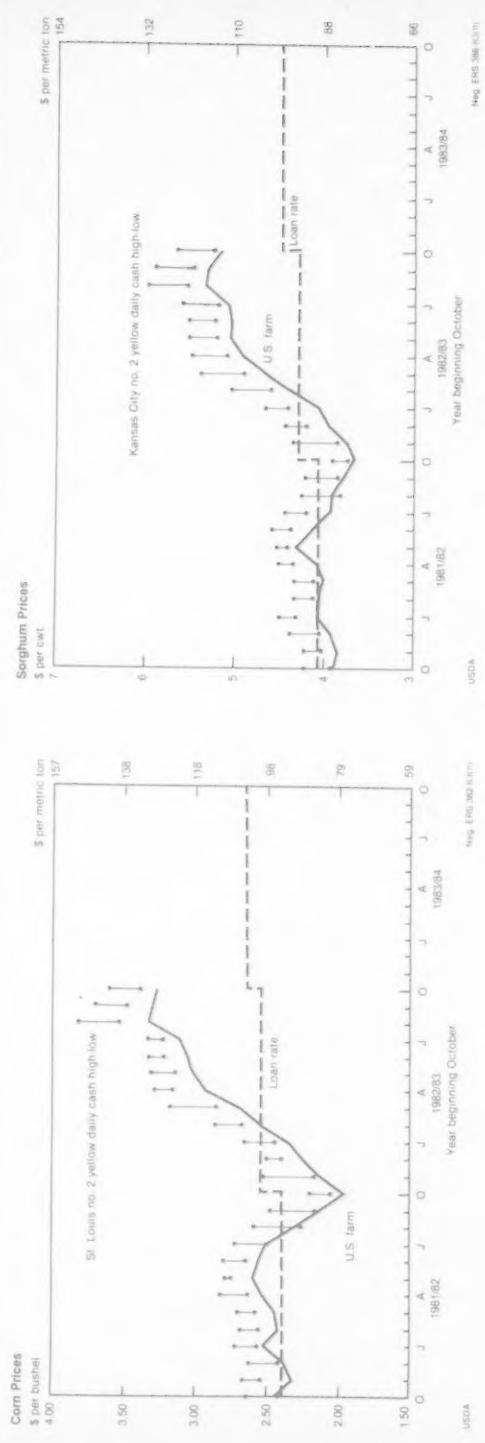
1/ Excludes urea and other nitrogenous compounds. 2/ Preliminary. 3/ Forecast. NA = Not available.

Table 20.--Processed feeds: quantity fed, 1976-83 1/

Feed	Year beginning October							
	1976	1977	1978	1979	1980	1981	1982 2/	1983 3/
--- 1,000 metric tons ---								
<u>HIGH PROTEIN</u>								
Oilseed meal								
Soybean 4/	12,751	14,766	15,758	17,113	15,646	16,012	17,327	16,826
Cottonseed	1,412	1,780	1,534	1,661	1,395	1,728	1,636	955
Linseed	117	79	122	146	117	100	70	70
Peanut	184	92	93	108	85	114	80	80
Sunflower	—	—	180	359	40	430	302	300
Total	14,464	16,717	17,687	19,367	17,283	18,438	19,415	18,231
Animal proteins								
Tankage and meat meal	1,995	2,112	2,107	2,356	2,229	2,261	1,566	1,426
Fishmeal and solubles	375	379	462	371	344	340	236	214
Commercial dried milk products	145	178	144	144	146	150	104	94
Noncommercial milk products	172	177	140	132	137	130	90	82
Total	2,687	2,846	2,853	3,003	2,856	2,881	1,996	1,814
Grain protein feeds								
Gluten feed and meal	941	1,109	1,083	458	254	941	1,083	1,029
Brewers' dried grains	269	256	280	307	290	239	275	261
Distillers' dried grains	339	366	449	449	453	448	515	489
Total	1,549	1,731	1,812	1,214	997	1,628	1,873	1,780
<u>OTHER</u>								
Wheat millfeeds	4,351	4,508	4,484	4,400	4,638	4,578	4,285	4,300
Rice millfeeds	546	501	574	633	706	667	624	600
Dried and molasses beet pulp	1,593	1,316	1,361	1,485	1,165	1,365	1,278	1,147
Alfalfa meal	1,090	1,358	1,243	1,143	994	898	841	750
Fats and oils	656	667	630	635	630	564	509	522
Molasses, inedible	3,575	3,250	3,100	2,812	3,251	2,540	2,378	2,300
Miscellaneous byproduct feeds 5/	998	998	1,000	907	1,000	1,425	1,334	1,517
Total	12,809	12,598	12,392	12,015	12,384	12,017	11,249	11,136
Grain total	31,509	33,892	34,744	35,599	33,520	34,964	34,533	32,961

1/ Adjusted for stocks, production, foreign trade, and nonfeed uses where applicable. 2/ Preliminary. 3/ Forecast.

4/ Includes use in edible soy products and shipments to U.S. territories. 5/ Allowance for hominy feed, oat millfeeds, and screenings.



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### Supply and Disappearance

Annual: 1978-83		
Feed grains (marketing year)	1	14
Corn	2	15
Sorghum	3	16
Barley	4	17
Oats	5	18

### Quarterly: 1978-83

Feed grains (feed year)	6	19
Corn (marketing year)	7	20
Sorghum	8	21
Barley, 1979-83	9	22
Oats, 1979-83	10	23

### Prices

Average prices received by farmers, United States, by months, 1979-83	11	24
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